



Title: Predicting and Intervening in Adolescents' and  
Students' Alcohol use.

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PREDICTING AND INTERVENING IN  
ADOLESCENTS' AND STUDENTS'  
ALCOHOL USE.

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## **Abstract**

The principal aims of the study were to investigate the determinants for alcohol use in adolescence and formulate a framework for intervention design, and to use this framework to design an interactive intervention to prevent alcohol misuse in adolescents.

The first study was a focus group study with 27 11-14 year olds to gauge opinions related to alcohol use and the drinking environments. The results of the analysis supported a framework of the combination of the theory of planned behaviour (Ajzen, 1991), the prototype willingness model (Gibbons & Gerrard, 1995, 1997), the social norms approach (Perkins & Berkowitz, 1986).

The second study was a pilot of a questionnaire based on the combined model constructs, personality characteristics associated with adolescent alcohol misuse and behavioural measures of frequency and quantity. The first pilot was with 19 adolescents aged 11-15, which indicated that three subscales needed amendment. The participants rated the scale as easy to complete. The second pilot with 31, 16-19 year olds indicated that the subscales were reliable.

The third study was a quantitative longitudinal study to evaluate the threats to external validity. The cross sectional analysis (n=239) indicated that past behaviour, subjective norm, affective attitude, drinker image and typical peer frequency predicted intention to drink alcohol. The results of longitudinal study (n=60) indicated that there were no significant differences between variables at baseline. This supported the validity of the questionnaire for intervention evaluation. The most significant predictor of behaviour at follow-up was past behaviour and subjective norm at baseline.

The fourth study was a focus group study with 15, 11-14 year old participants to gauge their opinions about computer games and using games for health

interventions. The themes that were identified were used to formulate a conceptual framework for an interactive computer game.

The fifth study was a quantitative evaluation of a preliminary interactive role-play study to examine interactive scenarios based on the environments identified in the alcohol focus group study and behaviour change techniques from the taxonomy for alcohol use (Michie, et al., 2012). The post-intervention results indicated a significant difference in perceptions of peer drinking norms.

Overall, the research supported the use of a combined theory to predict and prevent alcohol use in adolescents and an interactive method for intervention.

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Finally I would like to dedicate this work to the memory of my mum and dad, who taught me to work hard and never give up.

## Foreword

There has been a worrying trend in the increased amounts of alcohol that adolescents are consuming (McVie & Bradshaw, 2006) and the subsequent risk to health (Department of Health, 2004). Alcohol is estimated to cost the NHS approximately 3 million pounds a year.

Although, the number of adolescents drinking alcohol seems to have decreased (Bradshaw, 2011), the level of drunkenness has not (Brooks, Magnusson, Kiemara et al, 2011). In a recent survey of health behaviours in school aged children, 18% of 11 year olds, 36% of 13 year olds and 63% of 15 year olds had consumed alcohol within the previous month (Bradshaw, 2011). This early onset of alcohol consumption has been linked to continued alcohol use in a dose dependent manner, and related to a marked increase in liver disease in the 25-34 year old age bracket (Thomson, Westlake, Rahman et al, 2008). The key transitional points in adolescence seeming to occur between 13 and 14 years (McVie & Bradshaw, 2005; Bradshaw, 2011), with the greatest increase in frequency and prevalence.

The ideal age to intervene would seem to be prior to onset and such is the problem that in 2007, NICE published some guidelines that stated that alcohol should be part of the school curriculum, as part of their healthy schools initiative. However, previous educational based interventions that universally targeted alcohol seemed to demonstrate an increase in knowledge but had little effect on subsequent alcohol related behaviour (Foxcroft, Ireland, Lister-Sharp et al, 2002). Targeted interventions towards specific risk factors for adolescent alcohol use such as personality traits of sensation seeking and impulsivity (Stewart, Conrod, Marlatt et al., 2006) and misperceptions of peer drinking behaviour (Lewis & Neighbors, 2006) have demonstrated more success, at least in the short term.

Adolescence is a unique period with many maturational and developmental changes including a move towards being more influenced by their peers than their parents (Moshman, 2011). Therefore there is a need for a multi-faceted intervention that targets a range of risk factors that is both appealing to this age

group and that could support the PSHE curriculum. A computer game intervention called “XS” may be one such way. It is the purpose of this thesis to investigate the influences on adolescent alcohol use and the feasibility of building an interactive environment for alcohol education in adolescents.

## Chapter One

### Aims and Overview

#### 1.1 Aims

The overall aim of this thesis is to investigate the predeterminants of alcohol use in adolescents and to develop a framework based on theoretical constructs to form the basis for intervention design.

Using an intervention mapping approach identify factors that can affect initiation and subsequent alcohol use.

Identify environments in which young people consume alcohol.

Construct a questionnaire based on a theoretical framework specifically for adolescent alcohol behaviour

Identify the active components within intervention and design an interactive intervention to prevent alcohol use/misuse.

#### 1.2. Overview of chapters

The thesis is presented in 12 chapters. Chapter 2 is [the introductory chapter](#) and is concerned with defining alcohol misuse and identifying the risk associated with adolescent drinking. It also evaluates the health implications of alcohol use and specifically explores adolescent drinking behaviour. It then goes on to discuss the developmental theories of adolescence and the literature relating to previous behaviour change interventions in adolescent and student alcohol use and highlights the strengths and weaknesses of the various methods. The chapter then discusses the theoretical components together and the process of intervention design with particular attention to the recent strategies of behaviour change using

taxonomies. It also outlines the intervention mapping approach, which is the process that has been adopted by this research. The final part of the chapter is concerned with outlining the research framework for the current research and intervention design. It is concerned with setting out the plan of study in relation to the intervention mapping approach and provides a rationale for using a mixed methods approach. It also outlines the ethical considerations for the current research programme in line with the BPS guidelines.

Chapter 3 presents the first study of the research programme. The study is an explorative qualitative study to gauge the opinions of adolescents relating to drinking behaviour and the environments in which drinking takes place. It is the first stage of the intervention mapping process as it forms part of the needs assessment. A 5-step inductive analysis is used to identify the themes within the data. Comparisons are drawn between the emergent themes and the previous adolescent alcohol literature and theoretical models that have been used to predict and intervene in adolescent alcohol behaviour.

Chapter 4 introduces a conceptual combined adolescent alcohol model to predict adolescent alcohol use and provide a framework for adolescent alcohol intervention. The chapter also discusses the design of the questionnaire and the selection and construction of each of the scales for the determinants of alcohol use for each of the theoretical models. It also discusses the frequency and quantity measures of the behaviour and the inclusion of a knowledge quiz.

Chapter 5 describes Study 2 of the research programme. The second study is part 2 of the intervention mapping which is the formation of the matrices through the evaluation and selection of the determinants. The study is concerned with the evaluation of the reliability of the subscales of each of the theoretical components of the questionnaire. The chapter describes 2 pilot studies. The first pilot study was conducted with the target recipient group, which included an evaluation of the tool in terms of its readability and suitability of length. It also highlighted potential issues with measurement, which were addressed in a second pilot with older adolescents, and explores the relationships between the variables.

Chapter 6 introduces Study 3 of the research programme, which is a longitudinal study to test the reliability and validity of the questionnaire. This chapter is concerned with the methodology of the longitudinal study and the evaluation of the questionnaire. The chapter describes and justifies the chosen methodology and the proposed analysis.

Chapter 7 is concerned with presenting the results of the cross sectional analysis of Study 3, the Adolescent Alcohol Questionnaire evaluation study. The participants drinking behaviour is examined and the relationships between the variables within the combined model are explored. The chapter also describes the results of a multiple regression analysis to explore which of the models/variables within the models that make up the combined model best predicted intention and willingness to drink alcohol.

Chapter 8 compares the measures within the Adolescent Alcohol Questionnaire between two time periods over four months to test the reliability and validity and threats to external validity. This is the second part of Study 3 and is concerned with presenting the results of the longitudinal analysis. The chapter describes the results and explores the relationships between and within the variables. The relationships and reliability are compared across the time points and there is a comparison between the measures at baseline and follow-up. Finally the chapter explores which of the variables at baseline best predicts drinking behaviour at follow-up, and which of the models, within the combined model best fits the data.

Chapter 9 forms part of the Stage 1 of the intervention mapping approach and explores the potential of using a computer game for delivering an adolescent alcohol prevention/intervention strategy. The chapter also describes Study 4, which is a qualitative focus group study to gauge the opinions of young people on computer games and using computer games in their PSHE classes. The chapter considers PSHE lessons and explores the codes and subthemes of the focus groups.

Chapter 10 is concerned with drawing together all of the concepts from the previous chapters and studies and transferring them into a deliverable

intervention. The chapter discusses the design of the intervention in relation to intervention mapping procedures and taxonomies of behaviour change techniques. The chapter then goes on to outline a role-play intervention as a primary step towards modelling the potential computer game scenarios and considers the effectiveness of drama-based interventions.

Chapter 11 presents the final study for this thesis, Study 5. Study 5 is the pilot of the role-play intervention with a class of school-children. The chapter describes the methodology of the pilot study and then goes on to report the analysis of the data. The relationships between the variables are explored and compared pre and post intervention to evaluate the effectiveness of the intervention.

Chapter 12 is the final chapter of this thesis and provides an overall summary of the research programme, bringing together the findings from Study 1,2,3,4 and 5. The studies are critically evaluated in terms of their strengths and limitations and the contribution of the thesis to the research in the area of adolescent alcohol use is considered. The chapter concludes by suggesting future development and the direction of future research in this area.

## Chapter Two

### Introduction

*“Harmful use of alcohol is the third leading risk factor for premature deaths and disabilities in the world”*

*(WHO, 2010)*

#### 2.1 Overview of Chapter 2

This chapter is concerned with describing alcohol and defining alcohol misuse. It then outlines the health implications of alcohol misuse and the links with early commencement of drinking in adolescence. The chapter then focuses on the incidence and prevalence of alcohol use in adolescents, and the potential pathways to alcohol use. It then focuses on adolescence as a unique period of development and discusses the developmental theories of adolescence from a social and cognitive aspect, which indicate that this is an ideal period for targeting health interventions for risky behaviours. The chapter then focuses on the literature regarding previous interventions in preventing adolescent alcohol misuse and intervention design. The final part of the chapter then focuses on the literature surrounding theories that have been used to predict alcohol behaviour and behaviour change and using the intervention mapping approach outlines the procedure for the current research.



## **2.2 Alcohol**

Alcohol is now a socially acceptable intoxicating substance that is embedded in modern UK culture. The popularity of alcohol in the UK can be traced as far back as 965 to the reign of King Edgar when alehouses had become so popular that it was ordered that there should be only one per village (Moore & Nero, 2013). It continued to be prevalent throughout history. In medieval times it was consumed instead of water as it was deemed safer (Alchin, 2012), and it was also referred to in the literature of the 19<sup>th</sup> century, when due to outbreaks of cholera, alcohol or boiled tea were consumed (Pool, 1993). By the Dickensian era it was already considered to be a harmful addictive substance and a disease model of alcohol addiction was proposed, which became key to the American Temperance movement and the move towards prohibition. Abstinence was considered to be the only remedy (Levine, 1978).

However, alcohol still remains a popular substance in current society and the popularity of alcohol may be attributable to the effects of increasing sociability in social situations. Alcohol is a central nervous system depressant that slows down the body's responses which results in a loss of inhibition, and induces feelings of euphoria and relaxation if consumed in moderate amounts (Talk to Frank, 2010; British Medical Association, 2009). It is often mistakenly considered to be a stimulant, and this may be due to the disinhibiting effect.

### **2.2.1 Defining Alcohol Misuse**

There are many definitions relating to drinking that are used in the literature such as problem drinking, addiction, abuse and dependency. It is therefore important to define alcohol misuse in the context of the current research. The definition or criteria that is offered for the term alcohol misuse is drinking levels of alcohol that can cause short term and long-term problems, which are either psychological, physical or social (Foxcroft & Tsertsvadze, 2012). This definition adopts the biopsychosocial model of health that was first proposed by Engel, (1977) and includes alcohol related harm to self in terms of alcohol intoxication and

overdose, or related injury. It also includes alcohol-induced harm to others such as drink driving or violence and long term harm to the self such as long term health issues (Foxcroft, Ireland, Lowe & Breen, 2008). It is therefore this definition that has been adopted in the current research to describe alcohol misuse.

### **2.2.2 Health Implications of Alcohol**

It is well documented that long term excessive use of alcohol can have serious health implications (Department of Health: DOH, 2004) and contributes to 44,000 deaths a year with an estimated cost to the NHS of £3billion. Alcohol has been implicated in some 60 different types of diseases e.g. cancers, cirrhosis of the liver, CHD, mental and behavioural disorders, as well as acute intoxication effects such as vomiting passing out, risk taking and injury, (Institute for alcohol studies, 2013). In 2010, there were 8,790 alcohol-related deaths, which was an increase from 2009 (8664 deaths), and this figure would be higher if the figure included oesophageal cancer and other conditions (Alcohol Concern, 2013). According to Alcohol Concern, (2013), the amount of hospital admissions due to alcohol misuse has increased by 100% since 2002/2003 with a documented 1.1 million in 2009/2010. In fact, Deluca (2010) reports that 70% of A& E admissions in the early hours are due to alcohol and 40% at the weekends, which is placing a burden on the NHS. At peak times in A&E, 40% of the patients have raised blood alcohol level, 14% are intoxicated and 43% are problem drinkers and present as assault victims, psychiatric emergencies and as a result of road traffic accidents (Deluca, 2010).

Alcohol use often starts in adolescence and there has been a worrying trend of increased alcohol use and heavy episodic drinking (often referred to as “binge” drinking) in young people, with alcohol often being the first substance of use (Stewart, Conrod, Marlatt, et al, 2005: McVie & Bradshaw, 2005). This increases the risk of alcohol related liver disease which has risen markedly in the 25-34 year old age bracket and is thought to be related to early onset of alcohol consumption (Thomson, Westlake, Rahman et al, 2008). This early onset of alcohol use has also been linked with consequences of development in regions of the brain (e.g. De Bellis, Clark, Beers et al, 2000) and subsequent impairment of functioning

(Brown, Tapert, Graholm et al., 2000) and differences in the processing of executive functioning tasks (Tapert, Schweinsberg, Bartlett, et al., 2004) Animal research has shown that the effects of alcohol misuse on the adolescent brain are different and more severe than the adult brain and may cause memory impairments later in life (White, Ghia, Levin & Swatzwelder, 2000; Crews, Braun, Hoplight et al., 2000).

Moreover, in a study of 77 coroners cases, alcohol and substance intoxication were found to be significant contributors to accidents, suicide and other adolescent deaths (Valle, Gosney & Sinclair, 2008). The Department of Health also reported that accidents due to alcohol are the leading cause of death in the 16-24 year old age bracket (DH, 2010). Moreover, it is implicated in adolescent sexual activity and can result in risk taking such as the non-use of condoms (Phillips-Howard, Bellis, Briant et al., 2010). The use of alcohol is far more common than other substances (McVie & Bradshaw, 2005) and can affect impulse control and judgement within adolescents, which could increase the probability of sexually transmitted infections, suicide, depression and social isolation (Stewart, Conrod, Marlatt et al, 2005).

### **2.2.3 Alcohol Use in Adolescents**

As early onset of alcohol use can predict continued and heavier drinking (e.g. McVie & Bradshaw, 2005), it is recommended that adolescents under the age of 15 should not consume alcohol (Donaldson, 2009). The Edinburgh Study on adolescent smoking, drinking and drug use (McVie & Bradshaw, 2005) identified that 45% of their sample had drunk at least one alcoholic drink by the age of 12, and that early experimentation with alcohol predicted continuity of alcohol use in a dose dependant manner (McVie & Bradshaw, 2005). This means that those that commence drinking at an early age are more likely to continue drinking and to drink more, as they get older. It has been estimated that UK adolescents are the third worst binge drinkers (defined as 5 or more drinks on one occasion) in the European Union, with more than a quarter of 15-16 year olds admitting to binge drinking three of four times in the previous month (Anderson & Baumberg, 2006).

The key transitional points in adolescence in a UK population seem to occur between ages 13 and 14 with the greatest increases in the frequency and prevalence of alcohol consumption (McVie & Bradshaw, 2005). The Health Behaviours in School Age Children survey (Brooks et al, 2011) reported that 18% of 11 year olds, 36% of 13 year olds and 63% of 15 year olds had drunk alcohol within the previous month. This would suggest that this is an appropriate age to target alcohol prevention strategies and health interventions.

Alcohol was also the only substance that was used in isolation, as young people that smoked were also likely to drink and those that used drugs were also more likely to smoke and drink (McVie & Bradshaw 2005). Although there is recent evidence that the number of young people drinking has decreased since 2005 (Bradshaw, 2011), the level of drunkenness appears to have not (Brooks, Magnusson, Kiemeira, Spencer & Morgan, 2011). This suggests that those young people that are drinking are drinking more heavily. Therefore it would follow that the likelihood of drinking alcohol increases with age and that interventions targeted at the 11-13 year old age group may delay onset and prevent increased drinking in later adolescence although this would need to be examined.

#### **2.2.4 Trajectories of Alcohol Use**

The literature suggests that there are two trajectories in adolescent alcohol use, a normative path and a more problematic path. This more problematic path occurs in the minority but commences with early heavy consumption and a large increase in frequency and amount during adolescence (Chassin, Pitts & Prost, 2002; Flory, Lynam, Milich, Leukefield & Clayton, 2004; Windle, Mun & Windle, 2005). This early pattern of drunkenness may affect brain development and memory (Spear, 2000), and also lead to future problems with alcohol (Clark, 2004). Furthermore, even more normative drinking trajectories in adolescent alcohol consumption can affect health outcomes and can result in risky behaviours, such as accidents and risky sexual behaviour and delinquency, that can impact health and wellbeing (Mason, Hitch, Kosterman, McCarty, Herrenkohl, Hawkins & David, 2010;

Windle, Spear, Fuligni, Angold, Brown, Pine, Smith, Geddes & Dahl, 2011). It would thus appear that adolescence is a unique developmental period in terms of substance use and other risky behaviours.

## **2.3 Understanding Adolescent Alcohol Use**

### **2.3.1 Theoretical Explanations of Adolescence**

Adolescence is often considered to be the period of puberty until legal societal adulthood or self-sufficiency but some authors propose that adolescence can continue up to twenty five years of age (Baumrind, 1987). Bogin and Smith (1996) highlighted that it is a period of that is protracted in humans and therefore may extend into the early twenties and capture University students. During this period there is much growth and change as children transition through the stage of puberty into adulthood. The theoretical explanations of adolescent development are outlined here according to a biopsychosocial framework (Engel, 1977). Although, they are discussed separately, the interrelationships are acknowledged.

### **2.3.2 Biological Theories**

From a biological perspective, adolescence and the behavioural characteristics that are associated with adolescence can be explained by maturational changes in the brain (Spear, 2000; Stewart, Conrod, Marlatt, Comeau, Thrush & Krank, 2007). These neural changes can provide some biological explanation for some of the behaviours exhibited. It is difficult to characterise the onset of adolescence and it may be confused with the onset of puberty and sexual maturation, but adolescence can be seen more of a transitional phase between childhood and adulthood. It is a period where peer interactions and an increase in novelty and risk-taking behaviours are observed (Spear, 2000). During periods of adolescence there are many changes in biological, cognitive and social processes and social environments. Amongst these changes are changes in the structure of the nervous system due to dendrite pruning and hormonal changes as well as neurophysiological changes as described by Spear (2000; Windle, Spear, Fuligni,

Angold, Brown, Pine, Smith, Geddes & Dahl, 2011). These neural changes that occur during this stage of development can also provide a biological explanation for behaviour and also may predispose a person to behave in particular way such as to initiate alcohol use (Spear, 2000).

### **2.3.3 Psychological Theories**

#### **2.3.3.1 Developmental Identity Theories**

Adolescence is often thought of as a period of transition between childhood and adulthood (Bergevin, Bukowski & Miners, 2003; Spear, 2000). There are several theories of development that refer to the adolescent period of transition. Erikson (1963, cited in Bergevin, Bukowski & Miners, 2003) viewed adolescence as a period of transition into adult roles. He maintained that it was a time of striving in search of identity and sense of self and coined the term “identity crisis”. There is a movement away from observable characteristics and more emphasis on internal characteristics such as beliefs and values as a result of thinking and reflecting about own desires, thoughts and motives for self-definition. It is also a time of trying to maintain individuality whilst concurrently trying to fit in with the group and a preoccupation with their social images (Erikson, 1963, cited in Bergevin, Bukowski & Miners, 2003; Gerrard, Gibbons, Reis-Bergan, Trudeau Vande Line & Buunk, 2002).

Marcia (1980) expanded on identity theory and explained it is an organization of attitudes, beliefs, individual history and abilities that form an internal self construct. He maintained that the more developed this self construct was the more an individual would be aware of their own uniqueness and the less developed, the more confused the individual would be. Marcia (1980) also maintains that identity may not be fully formed in adolescence but what makes this period unique is that it is the first stage of development where social skills, cognitive and physical development coincide. At the very minimum self-identity consists of sexual orientation, a vocational direction and an ideological stance (Marcia, 1980). Marcia (1980) outlined 4 modes of identity issues that should not be considered as

stages but descriptions of identity issues: Identity achievement, foreclosure, identity diffusion and moratorium. The term identity achievement refers to a commitment that is made to a sense of identity following an identity crisis. Foreclosure on the other hand refers not to an individual that has not experienced any crisis in identity but has conformed to the expectations of others without exploring alternatives. Diffusion is where an individual has given up on making a commitment to a clear identity and may or may not have experienced an identity crisis. Finally, Moratorium describes an individual that is likely in crisis but moving forward, still in active exploration but without commitment (Marcia, 1980).

The period of transition into early adulthood has been associated with increased risk-taking behaviour such as drug and alcohol misuse, and risky sexual behaviour (Chou, Grant, Dawson, Stinson, Saha & Pickering, 2005). This may be as part of the exploration process (Ravert, 2009) or to relieve the stress of commitment to a stable sense of personal identity (Arnett, 2005). Expanding upon Marcia, (1980) theory commitment has been subdivided to suggest an alternative process of identification with commitment, which is the internalising of the commitment (Luyckx, Goossens, Beyers & Soenens, 2006; Luyckx, Schwartz, Berzonsky, Soenens, Vansteenkiste, Smits & Goossens, 2008). It has been found that those with low commitment and low exploration have the lowest level of well being, and those in foreclosure and achieved identities were associated with lower levels of substance use (Schwartz, Beyers, Luyckx, Soenens, Zamboanga, Forthun et al, 2011). Ritchie, Meca, Madrazo, Shwartz et al, (2013), found that it was adaptive identity exploration which demonstrated a significant association with risky alcohol use. This may suggest that alcohol use is part of a normative trajectory or that it is used to relieve the stress of developing a more stable sense of self. However, adaptive identity commitment was associated with decreased substance use. This would seem to suggest that the exploration of identity is an important phase as failure to consolidate [seems to result in more risky behaviour and that commitment may be a protective factor in substance use \(Ritchie, Mecam Madrazo, Shwartz et al, 2013\).](#)

#### **2.3.4 Cognitive Developmental Theory**

Cognitive theory of development cannot be separated from personal and social aspects of identity formation, or from biological theories of maturation, but offers further understanding of the adolescent years. Piaget (cited in Moshman, 2011), pertained that cognitive development begins between the ages of 11 and 12 with the formal operations or formal reasoning stage. This is the last stage of Piaget's theory and continues into adulthood. Piaget (cited in Moshman, 2011) found that as children got older their reasoning ability alters and they begin to be able to engage in hypothetical reasoning and reflect and deal with their own thinking in a critical way. Piaget (cited in Moshman, 2011) claimed that cognitive competence is not seen in children below the age of 11, and so it is in this period that they are capable of hypothetical deductive reasoning and reflection and forms of moral reasoning and self - regulation. Therefore at this stage an adolescent is capable of understanding that health can be affected by internal factors as well as external factors (Bibace & Walsh, 1980). This change in cognitive abilities and self-regulation offer a unique opportunity to influence more positive health behaviours (Maggs, Schulenberg & Herelman, 1999).

#### **2.3.5 Social Theories**

It is also a period where there is increased amounts of peer interaction with a third of waking time spent with peers during school term time compared with only 8% in talking to adults (Csikszentmihalyi, Larson & Prestcot, 1977). Peers, friends and also mass media, may have more influence over the leisure activities and beliefs and preferences during this period of adolescence (Bukowski, Mutzoi, & Meyer, 2009; Windle, Spear, Fuligni et al, 2011), and they may display marked extremes of emotional states (Larson, Moneta, Richards & Wilson, 2002). Peer influence is considered to be at it's peak between 11-13 years of age and those that have controlling parents or parents that are not involved are likely to become more involved with peers (Fuligni & Eccles, 1993). Not all peer groups are



involved in drinking, and there are differences between groups of peers (Brown, 1990). However, according to peer cluster theory, Oetting and Beauvais (1987) it is these small cohesive peer groups that shape adolescent behaviour.

### **2.3.6 Social Identity Theory**

Group norms and processes have been the focus of research for several decades. In the seventies and early eighties Tajfel (1972) and Tajfel and Turner (1979, 1986), described intergroup behavioural processes as an extension of Festinger's (1954) social comparison theory to explain how social structures and belief systems can shape behaviour. Social comparison theory (Festinger, 1954) purports that individuals assess their own attitudes, emotional responses and abilities by comparing themselves to others that are similar. It is proposed that self-evaluation can only occur in comparison to others (Jetten, Haslam & Haslam, 2012). Tajfel (1972) extended the theory and argued that intergroup behaviour could be explained by social identity. Tajfel (1982) stated that social identity is the focus for certain social behaviour and that it enables group behaviour.

Evidence from the 'minimal group studies' found that individuals favoured members of their own in-group to an alternative out group (Tajfel & Turner, 1979). The impetus of social identity theory is that once an individual defines themselves as a member of a particular group, they tend to act to maintain the positive distinctiveness of the group to which they identify (Haslam, Eggins & Reynolds, 2003). Therefore a social identity is the individual's sense of who they are that is derived from their membership to particular groups. Reicher, Spears and Haslam (2010) describe this as being individual and social at the same time.

Social identity forms the basis of individual's norms, values, beliefs, perceptions, behaviours and relationships (Jetten, Haslam & Haslam, 2012). In terms of self-categorization particular individuals or particular stances become typically representative of the prototype and are perceived to be the embodiment of what the in-group members have in common (Jetten, Haslam & Haslam, 2012).

The implications for health are that people engage in health related behaviour according to whether it meets the normative behaviours of their social identity

(Oyserman, Fryberg & Yoder, 2007). People tend to move into groups that are perceived to share the same opinions and abilities as their own and define themselves in terms of their membership, striving to make the group positive, enduring and distinct (Jetten, Haslam, & Haslam, 2012). Oyserman, Fryberg and Yoder 2007 suggest that risky behaviours such as alcohol use are performed because they are self-affirming to a particular social identity but also important is the social identity that is salient at that particular time such as socialising with friends.

## **2.4 Summary of Adolescent Related Theories**

Despite the disparity of theories, there is an overall consensus that adolescence is a unique period of development with social, cognitive and maturational changes contributing towards behaviour. It is also a time when peer friendships and peer interactions gain importance (Bukowski, Motzoi & Meyer, 2009). During the period of personal identity and formal operations adolescents look to peers and they are integral to the process of self-definition. They work together to establish autonomy from their parents which is especially important in the 11-16 year old age group as this is a time where the influences of friends are more important than their parents and romantic relationships are not yet prominent (Bukowski, Motzoi & Meyer, 2009; Fuligni & Eccles, 1993; Windle, Spear, Fuglini et al, 2011). Social groups and social identity seem to be key in establishing normative behaviours for particular groups and can help to explain the differences between drinking and non-drinking groups.

Adolescence is also a unique period. Drawing on animal models to would appear that adolescents are less susceptible to the consequences of alcohol that might indicate or act as cues to not drink anymore such as the sedation effects or feeling unwell and the avoidance of hangovers (Deremus, Brunell, Varlanskaya & Spear, 2003). This lack of inhibitory effect of unpleasant side effects may explain some of the risky drinking in this age group.

Drawing on the available evidence, it would seem to be an appropriate time to target interventions to prevent risk taking. In terms of development, adolescents

are becoming independent and making their own mind up about things and it is an ideal time to target behaviour change.

## **2.5 Adolescent Health Cognitions**

There is a paucity of research regarding adolescent health cognitions and as yet there seems to be [few](#) specific models of adolescent health. Therefore a literature search was carried out to identify possible frameworks of adolescent [and student](#) health.

## **2.6 Social Cognitive Models of Behaviour**

### **2.6.1 The Theory of Planned Behaviour**

The theory of planned behaviour (TPB) (Ajzen, 1991) is reasoned model of behaviour and an extension to the earlier theory of reasoned action (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). It is an expectancy-model of behaviour that has been extensively used to predict a number of different health behaviours (e.g. Godin & Kok, 1996; Armitage & Conner, 2001; Conner & Sparks, 2006).

The original model (theory of reasoned action, Ajzen & Fishbein, 1980) consisted of intention as the proximal determinant of behaviour with the pre-determinants of intention being attitudes, or expectancies about the behaviour and perceived social pressures to perform the behaviour. Later, the TPB (Ajzen, 1991) was extended to capture other, more complex behaviours to increase it's applicability to behaviours that may have a less volitional element, but may be subject to other factors such as healthy eating (Conner & Sparks, 2006). Healthy eating requires the purchasing and preparation of food as well as the consumption, and so some parts of the behaviour may not be perceived to be under the control of the individual. Therefore perceptions of control were added to the model (Ajzen, 1991).

The TPB (Ajzen, 1991) model (Fig 1.1.) of behaviour postulates that the antecedent to a given health behaviour is an intention to perform the behaviour.

The variables that are considered to predispose intention are carefully formed attitudes (outcome expectancies) towards performing the given behaviour, the social pressures to perform or not to perform the behaviour, and the motivations to comply (subjective norms), and the perception of how easy or difficult it is to perform the behaviour (perceived behavioural control) (Conner & Sparks, 2006; McMillan & Conner, 2003).

#### **2.6.1.1 Attitudes**

According to Fishbein & Ajzen, (1975), attitudes can be considered as learned dispositions, based on the expectancies of outcomes from previous experience of knowledge. It is proposed that attitudes are based upon salient beliefs at a given time and therefore some attitudes may be more malleable than others. The expectancy – value model formula (Fishbein & Ajzen, 1975; Conner & Sparks, 2006) indicates that the attitude towards the object or behaviour is the beliefs about the attributes or the consequences of the behaviour and an evaluation of these attributes or consequences (Fishbein & Ajzen, 1975). Put more simply it is an evaluation of the outcome of the likelihood that performing the behaviour will lead to a particular outcome (Conner & Sparks, 2006). The beliefs about the behaviour that are considered to influence attitudes are considered to be elements such as age, gender, religion, socio-economic status and education. When the model is operationalized the formation of intention is when an unobservable attitude is transferred into a behaviour that is observable (Conner & Sparks, 2006; Ajzen, 1988, 1991)

#### **2.6.1.2 Subjective Norm (SN)**

The subjective norm variable is described as being the perceived social pressures from others to perform the behaviour (Conner & Sparks, 2006). The determinants of the subjective norm are normative beliefs. These normative beliefs are believed to be representative of others' perceived preference over whether one should or

should not perform a given behaviour and a motivation within to comply with these preferences. They are also proposed to encompass factors such as personality (Conner & Sparks, 2006).

### **2.6.1.3 Perceived Behavioural Control (PBC)**

The perception of control was added to the TRA to form the TPB, as people are more likely to perform behaviours that they have control over (Ajzen, 1988, 1991). Ajzen and Fishbein (2005) found that lack of control decreased the predictive ability of intention on behaviour; therefore control may be a barrier between intention and behaviour. As actual control is difficult to measure the model assumes a proxy measurement of perceived control (Conner & Sparks, 2006). In support, it was found that perceived control moderated the intention/behaviour link (Sheeran, Trafimow & Armitage, 2003).

The determinants of the PBC are influences of perceptions of having the necessary resources and opportunities to perform the behaviour. The beliefs around control are whether they inhibit or facilitate the behaviour and whether these are internal or external factors. High behavioural control could be perceived as arriving from opportunity and a lack of obstacles (Conner & Sparks, 2006). This perception of control variable is considered to be a combination of self-efficacy (Bandura, 1977) and controllability (Ajzen, 2002).

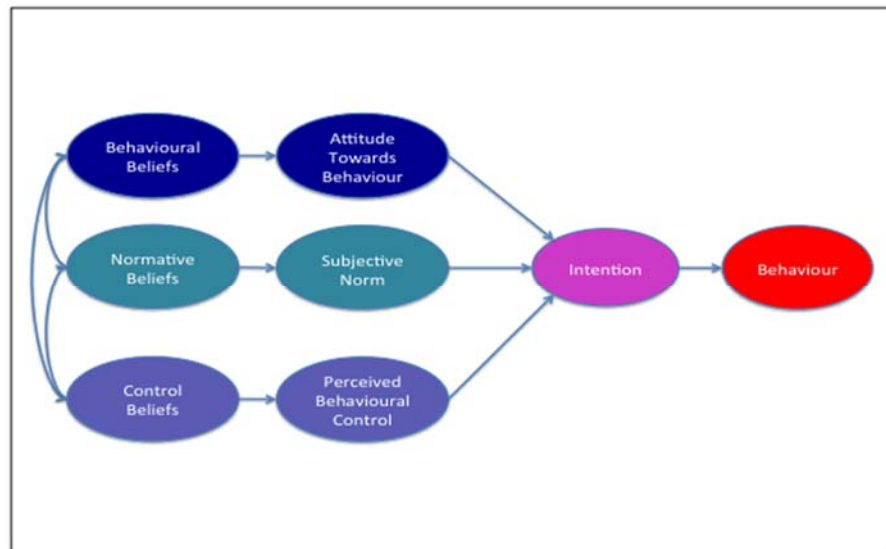


Figure 2.1: A Diagram of the Theory of Planned Behaviour (Ajzen, 2006)

### 2.6.2 Evidence for predicting health behaviour

Numerous studies have been conducted to assess the model in terms of predicting health behaviours such as physical activity (see Hagger, Chatzisarantis & Biddle, 2002 for a meta-analytic review), health screening and eating behaviours (see McEachan, Conner, Taylor & Lawton, 2011, for a meta-analytic review). There have also been some examples from the more risky behaviours such as sexual behaviours (see Albarracin, Johnson, Fishbein & Muellerleile, 2001 for a review) and drug use (see McEachan, Conner, Taylor & Lawton 2011). These studies have all demonstrated that the model provides an explanation of a significant amount of variance in intention and behaviour. However, not all of the components of the TPB model have been strong predictors of intention and behaviour and this has varied across behaviours. To examine this in relation to the current study examples were taken from the risk literature relating to alcohol use

and the TPB. Specific literature was also sought with examples that sought to enhance weaker components of the TPB such as the SN determinant.

In a study on the TPB and alcohol use Marcoux and Shope (2007) found that the TPB explained 76% of the intention to use alcohol. However, intention explained 26 % of the variance in alcohol use and 37% in frequency of alcohol use. There was however a large proportion of the variance between intention and behaviour that was not accounted for. The investigators believed that this intention-behaviour gap could be explained by external factors such as availability or changes in intention or beliefs between data collection points. Despite its extensive use, the TPB has also been criticised. Armitage and Conner (2001) conducted a meta-analysis of 185 studies and found that subjective norm was the weakest predictor of intention, across a range of health behaviours that were reviewed. The subjective norm component has therefore come under criticism for the way that it is conceptualized within the model (e.g. Conner & Armitage, 1998; Terry, Hogg & White, 1999). The scales of the subjective norm have been criticised for measuring injunctive norms – that is the approval or disapproval of significant others rather than more descriptive norms of perceptions of what others actually do and a person's own sense of morals or set of rules as to how they live (McMillan & Conner, 2003).

Some researchers have sought to increase the predictive capability of subjective norm and have extended the measures to include those that measure descriptive norms and these have been found to increase the contribution of the normative construct to predict intention e.g. Conner and McMillan, (1999) found that the descriptive norms explained 2% more in the variance in intention.

Moral norms have also been investigated and Conner and Armitage (1998) found that in 9 out of 10 studies moral norms significantly predicted intentions when the other variables within the TPB were controlled for and that the moral norm variable had increased the variance in intention by a further 4%. Conner and McMillan (1999) went on to look at the effect of moral norms on what might be considered a moral behaviour, that of substance use. In their study of cannabis use Conner and McMillan (1999) found that the inclusion of moral norms explained

1% more of the variance in intention. They further discovered that descriptive norms and moral norms reduced the injunctive measure to non-significance.

McMillan and Conner, (2003) looked at intentions and actual smoking and drinking behaviour with the inclusion of injunctive, descriptive and moral norms. The injunctive norms were measured in terms of friends, family, experts and others that performed the behaviour and whether they considered they should or should not perform the behaviour. The descriptive norms were measured in terms of best friend and partner's behaviour and moral norms were measured in terms of the premise that it would be morally wrong to engage in the behaviour. McMillan and Conner (2003) found that the TPB predicted both alcohol and tobacco use with attitude and PBC being significant predictors of alcohol use. In terms of norms, the injunctive norm and moral norms were not significant predictors, but descriptive norms were a significant predictor of alcohol use. This suggests that the original model needs some adjustments to the normative construct in order to increase the predictive validity, especially for risk taking behaviours such as alcohol use where group norms and friend's behaviour may affect the behaviour.

Elliot and Ainsworth, (2012) proposed a 2-component version of the model of the theory of planned behaviour (Ajzen, 1991). They maintained that attitude should include both instrumental and affective components, that norms should contain both injunctive and descriptive norms and self-efficacy and perceived controllability (perceived behavioural control). They argue that this 2-component approach gives greater insight into the antecedents of behaviour and conducted a study to compare the standard TPB to a 2-component model in a sample of undergraduate students in relation to binge drinking. The results indicated that the 1 component model showed good predictive validity but the 2-component model explained 90% variance in intention. Intention was demonstrated to be the determinant of behaviour with instrumental attitude, affective attitude and self-efficacy having indirect effects on behaviour via intention. The authors argue that this provides support for a rational decision of binge drinking and the intention-behaviour link (Elliot & Ainsworth, 2012). However, it is argued that reason may not always pre-dispose risk behaviour and that past behaviour may also be an



antecedent to behaviour (Gibbons & Gerrard, 1995, 1997; Gerrard, Gibbons, Houlihan, Stock & Pomery, 2008).

## **2.7 Dual Processing Models**

Socio-cognitive models such as the TPB (Ajzen, 1991) are a rational approach to explaining behaviour, however it is argued that individuals are not always rational and under certain circumstances may act in ways that may not be representative of their underlying beliefs (Strack & Deutsch, 2004). This would suggest that there is more than one underlying process that affects human behaviour and has led to a number of dual-processing theories (Smith & DeCoster, 2000). Smith and DeCoster (2000) proposed a two-memory system that operates in parallel; a slow learning schematic system and a more rapid processing system to meet the demands of more novel experiences (Smith & DeCoster, 2000). Although these systems have been used to describe processing and memory there has been less attention paid to the behavioural outcomes of these mental processes (Stack & Deutsch, 2000).

In an attempt to bridge this gap, Moss and Albery (2009) presented a dual-process model to account for the alcohol-behaviour link; the expectancy-myopia theory. Expectancies can be described as associations that are situated within long-term memory and not merely a recall of the expected effects (Moss & Albery, 2009). Evidence for the link between expectancies and subsequent behaviour comes from studies such as Vogel-Sprott (1995, cited in Moss & Albery, 2009) who found that expecting greater impairment after drinking affected performance on a simple motor task even in placebo groups. Expectancies therefore are considered to be learned representations in memory. The myopia theory on the other hand purports that when an individual has consumed alcohol the effects of the alcohol in the brain results in a reduced processing capacity and so the individual is more likely to act on the most salient or the most proximal cues to behaviour (Moss & Albery, 2009). Moss and Albery (2009) therefore purport that there are two phases to drinking pre-consumption and consumption. The pre-consumption phase is the mental representations that predict alcohol use and the consumption phase is the deficit in processing (Moss & Albery, 2009).

Wiers and Stacy (2009) criticised Moss and Albery (2009) and stated that not all expectancies are associative processing but instead are propositional reasoning and that they are an anticipation of an effect and have an 'if-then relationship' (Goldman, Brown & Christiansen, 1987). This is evidenced by children who have expectancies related to alcohol use prior to experiencing alcohol (Wiers & Stacy, 2010) suggesting social learning (Bandura, 1977), rather than associations based on direct experience. In response Moss and Albery, (2010) that there is an interaction between propositional and associative systems and that both have a role in predicting behaviour. Therein, although there may be debate relating to the specific mechanisms within processing and behaviour it is clear that social behaviour such as drinking is a result of reflective (slower) and impulsive processes.

### **2.7.1 The Prototype Willingness Model**

The prototype willingness model is an example of a dual process model that specifically targets the adolescent age group. Whereas, the theory of planned behaviour (Ajzen, 1991) is a reasoned model of behaviour and it is argued that not all adolescent risk behaviour is reasoned (Gibbons & Gerrard, 1995, 1997). The prototype/willingness model is a dual processing model based on the concept that decision making is based on both mood and heuristics, as compared to deliberate processing models which are based on deliberate reasoning in a more systematic fashion (Gerrard, Gibbons, Houlihan et al, 2008; Stanovich, 2004). The rational models, which involve deliberate processing, such as the theory of planned behaviour (Ajzen, 1991) have been successful in predicting some health protective behaviours but have been less successful in predicting behaviours that are considered to be less rational or exciting (Conner and Sparks, 1996). The prototype willingness model (Gibbons & Gerrard, 1995, 1997; Figure 3.2), argues that there is a disparate pathway to behaviours that are risky and that it is not intentional but a reaction to a social situation (Gibbons, Gerrard, Ouellette, Burzette, 1998). This may link to impulsivity, which is at its peak during adolescence, and it discussed later in the chapter.

This reactionary approach includes influential factors such as attitudes and subjective norms but unlike the theory of planned behaviour the prototype willingness model considers past behaviour and also other social factors. The attitudes in the PWM are more outcome focused, in that the less danger to self there is perceived to be the greater the willingness to partake in the behaviour (Gibbons, Gerrard, Blanton & Russell, 1998). It argues that the antecedents to any given behaviour are the adolescent's images of the typical person that might engage in that behaviour (prototype imagery) and a willingness to engage in the behaviour given the right opportunity to do so (Gibbons, Gerrard, Ouelette and Burzette, 1998). This model seems to fit the period of adolescence well. It captures that not all adolescents drink and in this way seems to fit the current study above other dual process models.

#### **2.7.1.1 Willingness**

It could be argued that willingness is a result of spending little time contemplating about the negative aspects of any given behaviour to themselves or others. There also may be a propensity to ignore the consequences or have not considered the consequences or recognise their own vulnerability to risks (Gibbons, Gerrard, Ouelette & Burzette, 1998). Gibbons, Gerrard, Ouelette and Burzette (1998) conducted a study to discriminate between intention and willingness and found that behavioural willingness and behavioural expectation were related to each other but involved different processing. Often behavioural expectation is used instead of behavioural intention in the risk literature as people are less likely to affirm that they intend to perform a behaviour but are more likely to agree that they expect to perform a behaviour (Warshaw & Davis, 1985). Intending involves attention and acknowledgement of personal risk whereas those that are willing to engage do not acknowledge personal risk or deny the relationship between risk behaviour and the consequences of the behaviour.

### **2.7.1.2 Prototype Images**

The images that individual's have regarding certain behaviours are also important within the model. According to Gibbons, Gerrard, Ouelette et al, (1998) health education regarding risk behaviours tends to be negative and young people tend to perceive risk behaviours negatively even if they themselves engage in that behaviour. This can be linked to the idea that greater emphasis is often given to negative traits (e.g. Birnbaum, 1972; Hodges, 1874; Fiske, 1980). Therefore, it might be expected that there would be greater desirability to dissociate from unhealthy behaviours and towards an association with healthy behaviours. This may be the case for risk behaviours but may not be the case for other positive behaviours (Blanton, VandenEunden, Buunk et al, 2011).

Perceptions of risky behaviours may also include some positives such as independence as well as negative images. It is these images that may influence whether adolescents choose to engage in the behaviour or not. Images should influence behaviour in that they are standards by which to form an evaluation of the self (Gibbons & Gerrard, 1995, 1997). The prototype willingness model proposes that adolescents understand that if they are seen engaging in these behaviours then they will be identified as part of that representative group. These images however are not considered to be goal states but are seen as consequences (Gibbons, Gerrard, Ouelette & Burzette, 1998).

Therefore, it can be assumed that the disparity between goal states and images that are acceptable, results in the willingness to engage in the behaviour in the right circumstances (Gerrard, Gibbons, Reis-Bergan et al, 2002). However, it can also be argued that images can represent goal states for some people in that they may wish to emulate others from a particular group or become part of the in-group (Tajfel and Turner, 1986). If this were the case then it would follow that those who abstain from drinking would have a non-drinker image as a goal state. In order to evaluate this Gerrard, Gibbons, Reis-Bergan et al, (2002) examined whether the images of those who abstained from drinking i.e. the prototype non-drinker were more favourable than their prototype drinker images and their own self-images. The findings indicated that non-drinker images were more positive

than their own self-images for abstainers and drinker images were more negative. What was interesting was that drinker's ideal selves were correlated with the non-drinker image, which the authors (Gerrard, Gibbons, Reis-Bergan et al, 2002) suggest may indicate that the non-drinker images may have some characteristics of a goal state. As drinking images were rated by drinkers and non-drinkers alike as more negative than their self image it would suggest that drinking is not about gaining the characteristics of a drinker. The non-risk images were also positively correlated with contemplation and negatively correlated with willingness and consumption, which is consistent with the notion that favourable non-risk images have an inhibitory effect on drinking consumption. The study did not support that drinker images were goal states so it would seem that the mediator between risk images and behaviour is willingness and between non-risk images and behaviour is contemplation. However there is also some evidence to suggest that for some, there is a relationship between images and consumption that is not mediated by contemplation or willingness but by well established non-risk images. It should also be noted that images of non-drinkers more favourable than drinkers even amongst drinkers (Gerrard, Gibbons, Reis-Bergan et al, 2002).

### **2.7.1.3 Evidence for the PWM**

There has been considerable evidence of using the PWM (Gibbons & Gerrard, 1995, 1997) in behaviour change interventions. For example, Blanton, Van den Eunden, Buunk et al, (2001) looked at social images relating to the use of condoms and found that a safer-sex image did not predict a willingness to use a condom but an unsafe-sex image did predict condom use. A willingness to have sex without a condom was significantly correlated with the evaluation of the unsafe-sex prototype. It was those that had the especially negative images of non-condom use that were the least likely to have unsafe sex. So it would seem that the use of condoms might be based more on consideration of the undesirable social consequences rather than the positives of use. Using negative attributes of those that were having unprotected sex decreased the willingness to engage in sex without a condom (Blanton et al, 2001).

Further evidence is provided by Piko, Bak and Gibbons, (2007) who identified three types of prototypes in their research in adolescent smoking. There was a negative prototype that was considered dull, or childish for example, a proactive social appearance prototype with high scores on the scales of cool and popular, and also a positive individual competence prototype, with descriptors such as smart and independent. More of the smokers evaluated the typical smoker as smart, good looking and considerate whereas non-smokers perceived smokers as dull, childish and confused. They also found that the role of the negative prototype for non-smokers were greater than the positive prototypes for smokers (Piko, Bak & Gibbons, 2007). The prototype images are assessed using a set of 12 adjective descriptors that were based upon focus group research. The participants were asked to take some time to think about the typical person who smokes/doesn't smoke prior to answering. [This may also transfer to other adolescent risk behaviours such as alcohol use.](#)

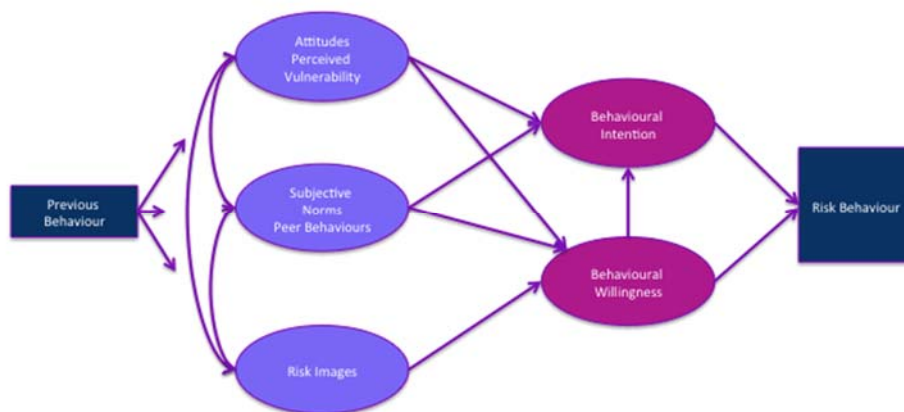


Figure 2.2 A diagram of the prototype willingness model (Gerrard, Gibbons, Hoilhan et al, 2008).

#### **2.7.1.4 Augmenting the theory of planned behaviour and prototype willingness model**

According to Hammer and Vogel (2013), reasoned models tend to explain 31% of the variance whereas combining a reasoned approach with a reactionary approach can account for up to 79% of the variance in Behaviour, (Gerrard, Gibbons, Reis-Bergan et al, 2002). Ravis, Sheeran and Armitage (2006), found that attitudes and past behaviour were the most consistent variables that predicted intention. They also found that the theory of planned behaviour and past behaviour explained 62% of variance in intention to engage in risky behaviours (Ravis Sheeran & Armitage, 2006). Positive evaluations of the prototype image and a greater perceived similarity to those who engage in risk behaviour were also associated with stronger intentions.

It is also proposed that more favourable cognitions can affect drinking behaviour through behavioural willingness (Dal Cin, Worth, Gerrard, Gibbons et al, 2009). Dal Cin, Worth, Gerrard, Gibbons et al, (2009) in a prospective study looked at whether the relationship between descriptive norms, drinker prototypes and alcohol expectancies and alcohol use was mediated by willingness following alcohol exposure within movies amongst a group of adolescents aged between 10 and 14. They found that there was a relationship between prototypes and expectancies and drinking that was mediated through behavioural willingness. The effect was thought to be due to the adolescents' identification with the characters within the movies, as they might with friends.

### **2.8 Social Norms Theory**

Adolescent alcohol use can also be attributed to the influences of those around them, particularly peer drinking norms. However, it has been demonstrated that there is a gap between the actual drinking behaviour of peers and what it is perceived to be (Perkins & Berkowitz, 1986; Baer, Stacy & Larimer, 1991;

Haines & Spear, 1996; Prentice & Miller, 1993). A large amount of research into the misperceptions of peer drinking behaviour and the effect on personal behaviour has been conducted in college students in the USA, as this is a population sample that demonstrates some of the highest rates of drinking. Research with college students has indicated that they tend to overestimate how much their peers are drinking (Lewis and Neighbors, 2006; Perkins, Haines & Rice, 2005; Perkins, 2007). Perkins et al, (2005) found in a large-scale study of 76,000 students across 130 different colleges and universities that the strongest predictor of the amount of alcohol consumed was based on the perceived amount that a typical student drank at parties and in bars. A further study in Canada (Perkins, 2007) found that perceived drinking norms were not accurate and there was a tendency to overestimate peer's drinking. Perkins (2007) also found that actual drinking behaviour varied across campuses but that frequencies and quantities were over estimated, indicating that whether in a lighter drinking environment or a heavier drinking environment, peer drinking was misperceived and overestimated. The effect of these misperceptions was that there was a tendency to drink more (Perkins, 2007). So the effect of misperceptions seems to be an increase in personal drinking behaviour. Perkins (2007) suggests that these misperceptions may not only affect drinking behaviour but peer interaction and engagement with institutions.

## **2.9 Personality**

Finally, there is also some evidence that personality factors predict alcohol use, with sensation seeking (SS) seemingly having the largest association especially amongst adolescents (Conrod et al, 2000; Malmberg, Kleinjan, Vermulst, Overbeek, Monshouwer, Lammers & Engels, 2012; Stautz & Cooper, 2013). Other personality characteristics that have been linked to drinking behaviour amongst young people are anxiety sensitivity (AS), impulsivity (IMP) and hopelessness (H) (Comeau, Stewart & Loba, 2001; Conrod, Stewart, Comeau & MacLean, 2006).



The motivational theories of variability associated with substance abuse have suggested that there are differences in personality, which reflect differing susceptibilities to some of the reinforcing effects of alcohol (Conrod et al, 2000). In brief, using both quantitative and qualitative methodologies, these personality factors have been identified as sensation seeking (SS), anxiety sensitivity (AS), impulsivity (IMP) and hopelessness (H) (Comeau et al, 2001, Conrod et al, 2006). The SS motives for alcohol use tended to be the 'letting loose' elements, such as enhancement of enjoyment and SS participants were specifically associated with more risk taking behaviours. The AS group on the other hand seemed to appreciate more of the sedating effects of alcohol and became less anxious about fitting in (Comeau et al, 2001, Conrod et al, 2006). Conrod et al, (2006), investigated the preventative effect of cognitive behavioural strategies that targeted these personality factors. The results of this study indicated that a tailored cognitive behavioural approach was effective in facilitating abstinence and reducing the quantity consumed and the number of episodes of binge-drinking. The SS group proved to be more prone to binge-drinking and the intervention had more impact in this group (Conrod et al, 2006).

The hopelessness characteristic tends to be linked with vulnerability and a tendency to drink in order to cope with negative emotions (Woicik, Stewart, Pihl & Conrod, 2009; Malmberg, Kleinjan, Vermulst, 2012). The anxiety sensitivity characteristic seems to be related to feelings of panic and although it is not necessarily related to binge drinking behaviour, there does seem to be some link between this characteristics and later drinking problems (Stewart & Devine, 2000).

Impulsivity is a characteristic that can be described as a tendency to act without first considering the consequences (Quinn & Harden, 2013). Sensation seeking on the other hand, although perhaps linked to impulsivity is the preference for novel experiences and excitement (Windle, Spear, Fuglini et al, 2011; Quinn & Harden, 2013). Personality characteristics are not stable and can change quite dramatically over time (Caspi, Roberts & Shiner, 2005). There are particular changes in

sensation seeking and impulsivity with a linear decline during the period of adolescence to adulthood. There are individual differences within these changes that can affect susceptibility to alcohol use. (Windle, Spear, Fuglini et al, 2011; Stewart, Conrod, Marlatt et al., 2005). Stewart, Conrod & Marlatt et al (2005) in a longitudinal study found that it was those participants within this particular study where the decline in impulsivity was most gradual at age 15-16, which seemed to have an increased susceptibility to alcohol misuse. [Other research has also found a link between the decline in impulsivity between 18 and 25 and increased alcohol use in a student sample \(Littlefield, Sher & Steinley, 2010 \)](#)

There are gender differences in that males seem to have higher rates of sensation seeking which seems to peak around 18 compared to girls at 16 (Bekman, Cummins & Brown, 2011). There is some evidence that the sensation seeking characteristic may affect cognitive factors especially in terms of expectancy for example Bekman, Cummins and Brown (2011) found that some of the link between sensation seeking and alcohol use could be explained by expectancies of outcomes. In girls peer drinking norms explained some of the variance between sensation seeking and drinking decisions (Bekman, Cummins & Brown, 2011).

School based interventions in the area have demonstrated some success in decreasing drinking behaviour (Conrod, Castellanos & Mackie, 2008; Conrod, Castellanos-Ryan & Mackie 2011). They have focused on targeting at risk individuals and teaching coping skills, cognitive behavioural skills for anxiety management and depression proneness and psychoeducational education about personality and using alcohol (Conrod, Castellanos-Ryan & Mackie, 2011). The results of this study indicated that the sensation seeking measure predicted binge drinking six months later, and following intervention the participants in the intervention groups were less likely to binge drink following the intervention than those on the control group. Therefore targeting SS traits may decrease drinking behaviour (Conrod, Castellanos-Ryan & Mackie, 2011) However, although there are short term significant effects on drinking behaviour, there seems to be less effect in the long term, as with other brief interventions (McCambridge & Strang, 2005; Conrod, Castellanos-Ryan & Mackie, 2011)

## **2.10 Previous Interventions**

There have been several reviews and meta-analyses including Cochrane reviews in the area of adolescent alcohol interventions (see Foxcroft, Ireland, Lister-Sharp, Lowe & Breen, 2002; Jensen, Cushing, Aylward, Craig, Sorell & Steele, 2011; Moreira, Smith & Foxcroft, 2010; Foxcroft & Tsertsvadze, 2012). These reviews suggest that alcohol interventions can be divided into two categories, Universal interventions and Targeted Interventions (Foxcroft, Ireland, Lister-Sharp, Lowe & Breen, 2002; Stewart, Conrod, Marlatt et al, 2005).

Universal interventions tend to be delivered to large groups of people without screening for any particular risk factors and an assumption that all are of equal risk (Foxcroft & Tsertsvadze, 2012). These interventions are often school-based and tend to focus on education to increase the awareness about harms, the teaching of peer resistance skills or adopt a cognitive-behavioural approach including teaching life-skills (Stewart, Conrod, Marlatt, Comeau, Thrush & Krank, 2005; Foxcroft & Tsertsvadze, 2012). The more conventional universal educational approaches have been criticised for demonstrating an increase in knowledge but having little or no effect upon intention to consume or consumption of alcohol (Lister-Sharpe, 1999). In fact, a systematic review (Foxcroft, Ireland, Lister-Sharpe, Lowe & Breen, 2002) revealed that out of 56 youth alcohol intervention studies; 15 short-term interventions reported some effect, whilst 19 studies that conducted a follow-up 1-3 years reported no intervention effectiveness. The community based life skills enhancing programme with both youth and parents showed potential value with 1 in 9 benefiting over a four year period compared with 1 in 24 with school based life skills training, however the effect was still relatively small (Foxcroft, Ireland, Lister-Sharpe, Lowe & Breen, 2002).

With such limited success, the focus shifted towards Targeted Interventions focusing on specific risk factors for alcohol use such as personality factors

(Stewart, Conrod, Marlatt et al., 2005, Comeau, Stewart & Loba, 2001; Conrod, Stewart, Comeau & MacLean, 2006), changing distorted perceptions about drinking norms, (e.g. Lewis and Neighbours, 2006), and increasing motivation to change (Stewart, Conrod, Marlatt et al, 2005). These types of interventions have tended to focus on one theoretical component in their design. An example is alcohol expectancies, as Scott-Sheldon, Terry, Carey, Garey & Carey, (2012) outline in their review of interventions to reduce college drinking in US college students. The interventions either used giving placebo (e.g. Darkes & Goldman, 1993) or didactic presentations (e.g. Corbin, McNair & Carter, 2001), in order to show that expectancy of the effects have some part to play, but there was inconsistent support for the effectiveness of these interventions in obtaining long-term alcohol behaviour change (Scott-Sheldon, Terry, Carey, Garey & Carey, 2012).

Interventions have also been conducted to target social norms and misperceptions of peers drinking (Lewis & Neighbors, 2006) and can be divided into two different approaches; giving individual personalised feedback and social marketing campaigns.

Social marketing campaigns revolve around providing the actual drinking norm information in the form of adverts, posters, flyers and emails and have shown some effectiveness (Lewis and Neighbors, 2006). However, what they fail to do is to facilitate the student in making a comparison to their own behaviour.

Personalised normative feedback correct misperceptions and could be considered to be more effective as social marketing campaigns are not asking for a direct comparison between actual and perceived norms. The social marketing campaigns tend to focus on the average student or campus norms and not friends. Previous research has demonstrated that there are no misperceptions of close friends drinking and so these are not the best referents for a social normative intervention (Baer and Carney, 1993).

Weschler and Kuo, (2003) looked at whether students that belong to groups who drink less had a moderating effect on binge drinking behaviour in college

students. They found that when there was a large-scale presence of sub groups who did not drink much there were less episodes of binge drinking. They also found that those participants who did not binge drink in high school were less likely to binge drink in college. Where there were larger amounts of minorities and older students binge drinking high school students were less likely to continue this behaviour (Weschler & Kuo, 2003).

Schulte, Monreal, Kia-Keating and Brown, (2010) looked at whether by correcting peer misperceptions there would be a decline in hazardous drinking patterns, that is the number of binge drinking sessions and number of drinks among high school students from 3 schools in the USA aged between 13 and 18. The intervention aimed to reduce barriers to participation by using relevant spaces on campus and focusing on aspects relevant to teens. The intervention was delivered in groups with individuals and via a web format. The sessions consisted of normative feedback, outcome expectancies, stress and coping strategies, progression to problematic use, and behavioural management in the form of identifying risks and increasing communication skills. The effects of the intervention were to reduce peer perceptions. Students who reduced their estimated of drinking were more likely to decrease their own binge drinking behaviour, with the greatest reduction experienced within the heavy drinking group, however light drinkers tended to increase their use regardless of their estimates (Schulte, Monreal, Kia-Keating & Brown, 2010). This suggests that interventions need to address more than one aspect of drinking behaviour.

Specific therapies such as motivational interviewing have also been used to try and reduce substance use in the adolescent population. A meta-analysis of motivational interviewing interventions conducted by Jensen, Cushing, Aylward et al, (2011), found that out of the 21 studies only 7 had follow-up periods that were greater than 7 months and that there was a small but significant effect at one month and 24 month follow-ups. However there were difficulties in that the number of interventions varied between 2 and 9 sessions, there were varying lengths of follow-up and there could be different results in a problem drinkers

(Jensen, Cushing, Aylward et al, 2009). They are also time consuming and require specialist knowledge in their delivery. [This type of intervention therefore may be more appropriate in a clinical population than in a PSHE intervention.](#)

There has also been diversity in the way that interventions have been delivered and methods have delivery have been evaluated for example Moore, Suderquist and Werch, (2005) looked at the efficacy of a postal versus online intervention. The intervention consisted of four newsletters, which contained material challenging expectancy beliefs and giving information regarding the increased risk of binge drinking behaviours. It also contained information about standard drink sizes and strategies for reducing binge drinking such as limiting intake to one drink per hour and found no differences between delivery methods. Thus suggests that online interventions are a plausible medium for intervention.

There has been an increase in intention to making interventions relevant to adolescent's lives and the underlying personality and motivational factors underlying the misuse of alcohol (Stewart, Conrod, Marlatt et al, 2005, Comeau, Stewart & Loba, 2001 Conrod, et al, 2006), what is yet to be developed is a multifaceted universal targeted intervention. There has been some attempt at Universal interventions that target multiple variables such as life skills programmes. However, although these life skills sessions have shown some modicum of success and fit within a school curriculum setting it is often difficult to pinpoint which aspect of the intervention is effective. In a study on the IPSY (Information and Psychosocial Competence = Protection) program (Spaeth, Weichold, Silbereisan & Wiesner, 2010) intervention several different methods were used such as role plays, group discussions and a combination of training on life skills such as stress and problem coping strategies, self-awareness and communication skills. The overall results indicated that the intervention was successful in reducing alcohol consumption in a non-problematic drinking group but not in a problematic group, although it did decrease the likelihood of belonging to the problematic group. These results are encouraging for a universal school-based intervention with normative drinkers, however, what seems to be

required is a method of delivery that is cost effective delivered through a medium that is relevant to the lives of adolescents.

### **2.11 Serious Games**

Making interventions relevant to young people is a challenge in intervention design and the key may be in immersive environments. The use of games in engaging young people in health behaviour change is supported in studies such as an obesity programme (Beckman, Hawley and Bishop, 2000), where games were used to enable goal setting and increase self- efficacy. This study demonstrated that the use of games was useful in achieving high participation rates and high levels of satisfaction (Beckman, Hawley and Bishop, 2000).

Serious games are a growing area of development and research, with serious games being defined as a game where the primary goal is education rather than for entertainment purposes (Michael & Chen, 2006), [although the discipline of behaviour change games are still relatively young \(Schoech, Boyas, Black, Ellias-Lambert, 2013\)](#). Further investigation into computer games revealed that many young people, both males and females, spend a significant amount of their leisure time, often 7 or more hours a week, playing computer games (Anderson and Bushman, 2001). A review of the literature (Mitchell and Savill-Smith, 2004) regarding the use of computer games revealed some evidence of games increasing self-esteem and mastery at least in the short term. There is also some evidence of positive effects of gaming in the therapeutic environment e.g. Re-Mission developed by the Hope Lab in the USA. Preliminary reports of 373 cancer patients ages 1-29, playing this tomb raider type game with a Lara Croft type heroine blasting cancer cells, have indicated increased adherence to antibiotic and chemotherapy treatments (Streisand, 2006).

With regard to alcohol use, there have been attempts to target adolescent drinking through games. Schinke, Schwinn and Cole, (2006) designed a CD-Rom

computer game intervention to prevent substance misuse in young people based on social learning theory (Bandura, 1986). They had 2 intervention arms in their study, one with family involvement and one with just playing the computer game and found that both intervention arms reported less drinking at four-year follow-up. However, although the basis for the game was social learning theory, it is unclear how the game was successful in reducing drinking. Computer game interventions are demonstrating some success in prevention. Rooke, Thorsteinsson, Karpin et al, (2010) conducted a meta-analysis of computer delivered interventions identified that a computer intervention aimed at prevention and targeted at the pre-drinking age had the most significant results, but require greater transparency in how they are effective, in other words they require a good theoretical underpinning and evaluation. [DeSmet, Van Ryckeghem, Compermolle et al. \(2014\)](#) in a meta-analysis of games for health promotion found that games had a positive small effect on health behaviour with the greatest change in attitudes and knowledge. Those based purely on prediction of health behaviours had the lowest effect ([DeSmet, Van Ryckeghem, Compermolle et al., 2014](#)). This would suggest that the framework needs to adopt a dual process approach.

## **2.12 The PSHE curriculum**

According to NICE (Sumnall, Jones Liskey et al., 2007), in their recommendations on interventions in schools to reduce and prevent alcohol misuse, interventions should focus on encouraging the delay in onset of alcohol use, the promotion of non-drinking and reducing alcohol, related harms. Sumnall, et al., (2007) state that school based alcohol education should increase knowledge about the effects of drinking and sensible drinking, decision making and assertiveness coping, increasing self esteem and increasing the awareness for advertising and resisting peer pressure. This guidance is currently being updated, but does serve to indicate that alcohol interventions should be part of the school curriculum.



### **2.13 Intervention design**

Designing effective risk interventions is a complex process involving a number of stages requiring precise and specific details of the intervention procedure (Michie, Abraham, Eccles, Francis, Hardeman & Johnston, 2011). There is a paucity of measures, theoretical models and frameworks designed specifically to address adolescent risk behaviours and unlike testing theory, when designing interventions, it is suggested that there is a need to apply multiple theories to the problem, rather than using one theoretical approach (Bartholomew, Parcel, Kok and Gottlieb, 2006).

Much of the intervention research suffers from poor reporting of the intervention processes. It is therefore argued that reports on interventions should contain specific information to increase transparency (Moher, Shultz, Altman & the CONSORT group, 2001) and include the following: - what the elements of the intervention are, information on who is delivering the intervention, intervention participants, and the location of the intervention, the method of contact e.g. face-to-face, the intensity e.g. the amount of face-to-face contact time and compliance with the delivery protocol (Davidson, Goldstein, Kaplan, Kaufman, Knaterund, Orleans, Spring, Trudeau & Whitlock, 2003). To this end, there has been an attempt to increase communication between intervention designers and increased chances of replication.

The last decade has seen an upturn towards research into behaviour change including the NICE (2007) guidelines. Much of this research has been focused on linking psychological theory to evidence based practice. Michie (2005) identified 12 domains formed from 128 constructs from 33 different theories in order to explain behaviour change e.g. knowledge, skills, beliefs about outcomes, motivations and goals. This work led onto the identification of specific behaviour change techniques (BCT) from a systematic review of behaviour change interventions (Abraham & Michie, 2008). These BCTs have been described as the active ingredients that are within interventions and should be observable and measureable. Examples from the 28 behaviour change techniques identified by Abraham and Michie, (2008) are information about consequences, social

comparison, stress management, social support and motivational interviewing. There have been more taxonomies published for a number of behaviours over the past few years e.g. physical activity and healthy eating (CAL-ORE, Michie, Ashford, Sniehotta et al, 2011), smoking cessation (Michie, Hyder, Walia & West, 2011), and alcohol (Michie, Whittington, Hamoudi, et al., 2012). The alcohol taxonomy is described in more detail in Chapter 11.

## **2.14 Intervention Mapping**

Designing interventions is a complex process and therefore requires a systematic approach. The intervention mapping approach (Bartholomew, Parcel, Kok & Gottlieb, 2006) offers a framework for intervention design that enables effective planning, implementation and evaluation of interventions. The intervention mapping approach was utilised for the current research as it had six clear steps to follow that seemed to fit with the requirements of the current research. These steps are; needs assessment, matrices, selecting theory based methods and strategies, translating strategies into a programme, making a plan of implementation and finally evaluation. These are outlined in brief below, but are explored more fully in the Chapter 4.

### **2.14.1 Needs assessment**

The purpose of the needs assessment is to assess the health problem and to understand the characteristics of the potential community that the intervention will be aimed at.

### **2.14.2 Matrices of Change**

The matrices of change specify who and what will change as a result of the intervention. These are formulated from performance objectives of pre-determinants and environmental determinants of behaviour.

### 2.14.3 Theory- Based Methods

These are theory-based strategies to change health behaviours. In light of the recent research on BCT's (Michie, Whittington, Hamoudi et al., 2012), these should be incorporated into the intervention design. Previous discussion has centred around the models that may predict behaviour but also to be considered are models of behaviour change, such as the stage models.

#### 2.14.3.1 Stage Theories

##### 2.14.3.1.1 The Transtheoretical Model

Stage models such as the Transtheoretical Model (TTM; Prochaska & Diclemente (1983) are models of behaviour change that suggest that individuals move through a number of successive stages in order to achieve change. They also suggest that there are different factors that have an effect at each of the stages. The model describes how people move from an undesirable behaviour to a desirable one and as such is an intentional model of change (Velicer, Prochaska, Fava, Rossi, Redding, Lafarge & Robbins, 2000).

The TTM (Prochaska & DiClemente, 1983) has its roots in psychotherapy and is a combination of cognitive and behavioural variables. The constructs of the TTM (Prochaska & DiClemente, 1983), are described as pre-contemplation, contemplation, preparation, action and maintenance (see table 2.1 below)

Table 2.1 The TTM model stages adapted from Connor & Norman (2006)

Pre-contemplation	No intention to change within the next six months
Contemplation	There is an intention to change within the next six months
Preparation	There is an intention to change within the next thirty days with a planned date
Action	This is the process of change and is

	describes behaviour change within the last six months
Maintenance	Is considered to be the period of sustained change greater than six months.

There are also constructs of decisional balance which is the weighing up of the pros and cons and self-efficacy including confidence in engaging in the behaviour change across a range of situations and also temptation in engaging in the behaviour across a range of situations (Prochaska & DiClemente, 1983).

There are also ten different processes of change described as experiential and behavioural activities that can help progression through the stages as depicted in the table 2.2 below.

Table 2.2: The decisional processes of the TTM adapted from Connor and Norman (2006)

<u>Experiential</u>	
Consciousness raising	Learning and finding new facts that support the behaviour change
Dramatic Relief	The emotional responses towards the behaviour e.g. fear anxiety or on hearing the success of others
Self-re-evaluation	Realising that the change is who they want to be
Environmental re-evaluation	Realising the negative/positive effect of their behaviour on their social and close physical environment
Self-Liberation	This is making a firm commitment to the change

<u>Behavioural Processes</u>	
Helping relationships	Social support – seeking and using
Counterconditioning	Substituting more healthy behaviours for unhealthy behaviours
Reinforcement Management	Rewarding positive behaviour change and not rewarding unhealthy behaviour
Stimulus Control	Removing behavioural cues to engage in the unhealthy behaviour and using reminders to engage in the healthy alternative
Social Liberation	Realising that social norms or societal opinion is in favour of the healthy change

The TTM would seem to fit well in the dual processing approach to understanding and intervening in alcohol use and has been used successfully in risk behaviours such as smoking cessation in adult populations for example Borland, Segan and Velicer (2009). However, the success of the TTM in adolescent or young adult literature is less encouraging for example Bridle, Reimsma, Pattenden, Sowden et al. (2005) conducted a systematic review on randomised controlled trials on a range of behaviours based on the TTM and out of 37 studies, there were only 6 participants that were under the age of 30 and there was little evidence to support efficacy of the model. Curry, Mermelstein & Sporer (2009) highlighted that there are very few studies that focus on adolescents and the ones that do tend to be based on adult interventions. An example of an intervention with adolescents is a middle school intervention conducted by Evers, Paiva, Johnson, Cummins, Prochaska, Prochaska, Padula and Gökbayrak (2012). This was a multi-substance study but was based on the TTM. Participants in the intervention each received three thirty-minute sessions with an individualised computer programme called “Your Decisions Count-

Alcohol, Tobacco and Other Drugs”. Based on the responses the students viewed images, assessments, feedback about norms and videos that were tailored to their needs. The results indicated that there was a significant difference in cessation between the intervention group and control three months after intervention but this difference was not seen at the six month follow up (Evers et al.. 2012). The authors highlighted that a single substance approach may be more appropriate and they also noted the constraints of the number of sessions that were available within the school timetable (Evers et al. 2012). The limitations of this study were that they did not clearly map the theoretical model onto the intervention techniques used and it is therefore difficult to ascertain which techniques used were the most effective for example whether it was the normative feedback that is present also in other models. Abraham and Michie (2008) maintain that transparency is important in intervention design.

#### **2.14.3.1.2 The Heath Action Process Approach Model (HAPA)**

The HAPA (Schwarzer, 2008) model has two phases the motivation stage and a volitional stage that would seem to fit well with a dual processing approach to alcohol use as previously described, although this seems to be dependent on the way that it is operationalized. It is a more parsimonious model than the TTM in post-intentional participants; if non-intenders are included in the sample then the TTM would be the more obvious choice as it includes pre-contemplators also (Schwarzer, 2008).

As previously stated the model has two phases a pre-intentional phase, which is the motivational stage, and the self-regulatory or action phase known as the volitional phase (Sutton, 2005). The motivational phase has three variables that are considered to have a direct effect on goals. These are self, efficacy, outcome expectancies and the perception of risk.

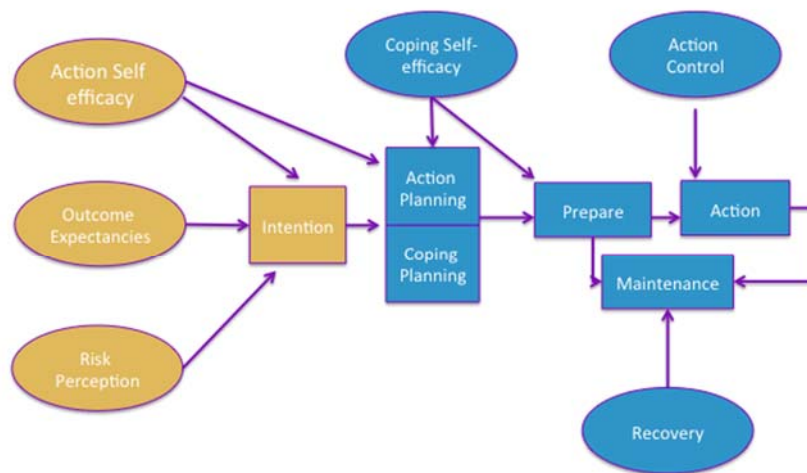


Figure 2.3: The HAPA model

Sutton (2007) proposed that the HAPA is very similar to the TPB when it is operationalized as a continuum and a stage model when it is operationalized as an explicit stage model.

The HAPA-C, as it has become known, is the continuum model (Sutton, 2007). What distinguishes from the TPB is action planning which mediates the relationship between intention and behaviour. Schwarzer in an interview with Sniehotta (2007) stated that adding planning and self-efficacy as mediators of the intention-behaviour gap in the TPB would make the TPB very similar to HAPA.

#### 2.14.4 Programme

This stage requires careful consideration of the materials and of the intended recipients of the intervention. It is also requires the piloting of the programme and strategies to assist in developing materials that meet the programme objectives.

### 2.14.5 Evaluation

This final stage of the process requires planning from the needs assessment. The evaluation of the programme should link with the matrices of change and provide measures of the change objectives to evaluate the effectiveness of the intervention (Bartholomew et al, 2006).

## 2.15 The Research Framework

### 2.15.1 Intervention Mapping Process Plan

The plan in Table 2.3 attempts to outline the intervention mapping process and how it has been applied to the current research, and how each of the studies fits into the overall framework.

Table 2.3: Intervention mapping process plan

Stage 1	Needs Assessment Assessing the needs of the target recipients.	Study 1 - alcohol focus group Study 4 – computer game focus group	1. Study 1 - gauging the opinions about alcohol and environments for use. 2. Study 4 - assessing the enjoyment and feasibility of using a computer game for intervention delivery.
Stage 2	Matrices of Change State the change objective Select personal	Study 1 – Alcohol focus group Study 2 – Pilot study on theoretical	Pre-determinants of behaviour from focus groups and from Theoretical



	and external determinants of alcohol use and environmental conditions.	constructs of TPB, PWM, Social Norms and Personality Study 3 – Longitudinal study of TPB, PWM, Social Norms and Personality	models that examined the determinants of intention and behaviour to drink alcohol.
Stage 3	Theory Based Methods Review the intervention idea with the intended recipients and utilise their ideas Evaluate theoretical methods that can influence change in determinants. Choose theoretical methods	Study 4 – Computer game focus group Study 5 – intervention study	Computer game focus group to gain opinions about using computer games for health interventions. Design and evaluate the intervention
Stage 4	Programme Review materials for match with matrices Develop intervention materials Incorporate recipient's	Study 1 - 3 Study, 4 – Computer game focus group Study 5 – intervention study	Intervention design combining elements from all of the studies and designing the scenarios for the intervention

	opinions		
Stage 5	Implementation	Study 5	Role-Play Study
Stage 6	Evaluation		Questionnaire

## 2.16 Current Research

The current research is divided into different phases that represent different stages of the intervention mapping approach. Each of the different phases has different aims, with the overall aims of developing a model of adolescent alcohol use to predict alcohol behaviour and form a framework for intervention design and evaluation.

## 2.17 Mixed methods

This research has used a mixed method approach to meet the requirements of the intervention mapping process. Qualitative research has been used to explore the opinions of the potential intervention recipients. Mixed methods research is useful as it is an attempt to take multiple perspectives on a particular area (Johnson, Onwuegbuzie & Turner, 2007). The current research could be described as an exploratory sequential design, where the qualitative research informed the design of the quantitative research (Onwuegbuzie, Bustamante & Nelson, 2010), and also as an intervention mixed methods framework, where qualitative data was used to support the intervention design and understand factors that could affect the outcome (Creswell, Fetters, Plano Clark & Morales, 2009). The qualitative focus group data in the present research was used to identify potential theoretical components to form a conceptual theoretical model of adolescent alcohol behaviour as a framework for intervention design and evaluation and also to assess and gauge the acceptance of using computer games for intervention delivery.

### **2.18 Study 1- Qualitative Research Alcohol Focus Group**

Study 1 was an explorative qualitative study to gauge the opinions of young people in relation to alcohol use and adolescent drinking environments. The study was a series of focus groups with young people in both school and community group settings.

Focus groups are a really useful method to investigate perceptions and attitudes as they offer a non-threatening environment in which to share ideas and opinions (Kreuger, 1994; Litolesseliti, 2003). They were chosen for this research as they offer a more naturalistic approach enabling participants to talk to each other in their social groupings and therefore sensitive to peer influences.

The focus groups were semi-structured in nature with five questions to engage the participants and keep them on topic. These questions were used to gauge the opinions of young people regarding alcohol use in young people and assess how their constructs of their social environments affected their alcohol behaviour.

The process of analysis was thematic analysis using the five step inductive approach described by Boyatzis (1998). This involved highlighting themes across the data and creating simple codes in order to categorize them.

The rationale for conducting the qualitative study first was to provide a more in depth view of the role of alcohol in an adolescent social context and to add depth to the understanding of the models of behaviour, and which might be appropriate to target an intervention.

### **2.19 Study 2 – Pilot Study to Evaluate a Questionnaire based on the combination of the TPB, PWM, Social Norms and Personality variables.**

The next stage of the research was assimilating the findings from the focus group research and from the literature to form a conceptual model of the pre-determinants of adolescent alcohol use. This process was part of the second stage of the intervention mapping procedure of identifying the pre-determinants of

behaviour. The conceptual model reflecting the combination of the theories is shown in Figure 2.4

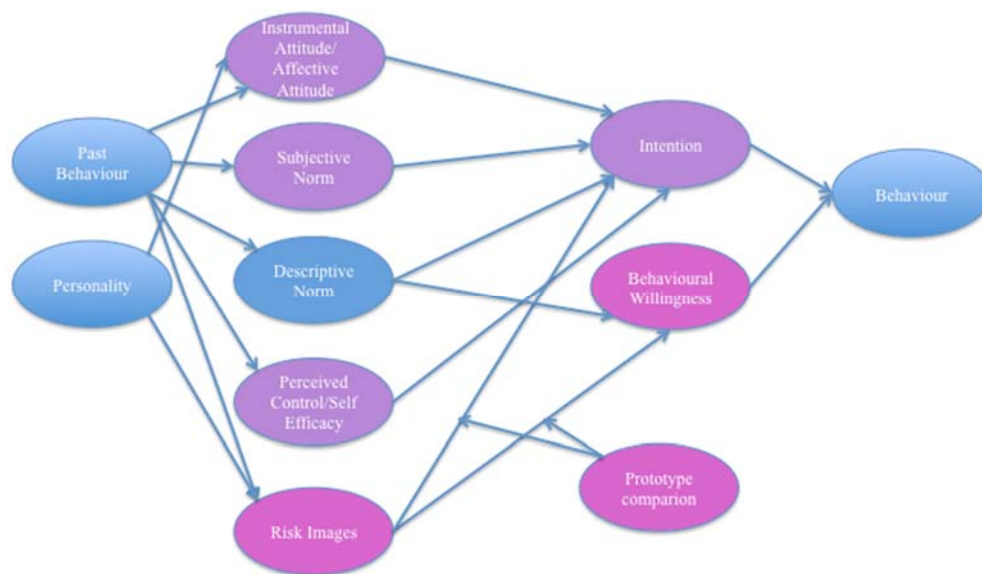


Figure 2.4: The conceptual combination of the TPB, PWM, Social Norms and Personality

The model is a combination of the theory of planned behaviour (Ajzen, 1991) the prototype willingness model, (Gibbons & Gerrard, 1995, 1997) the social norms theory (Perkins & Berkowitz, 1996) and alcohol prone personality factors (Conrod, Stewart, Marlatt et al, 2006). These theoretical models were included based on the previous literature that each of these constructs has been associated with adolescent alcohol use. A further rationale for using this model is that intervention design according to Bartholomew et al (2006) requires an eclectic approach.

Pilot studies were used to examine the reliability of the subscales for each of the constructs, and to gauge the appropriateness of the measures and presentation. A pilot study was carried out on a smaller sample of 11-15 year old volunteers with evaluation questions at the end pertaining to length, language and interest of the questionnaire. The purpose of this study was to examine the internal consistency of the items for each of the constructs and that the language was easy to understand and that it was of an appropriate length. The limitations of pilot study are that they may lead to incorrect assumptions being drawn (Teijlingen & Hundley, 2001).

Aims: To check the internal reliability of the scales and the language of the questionnaire.

To observe the relationships between the variables within the questionnaire.

#### Pilot Study Hypotheses

H1: It was hypothesised that the subscales would show good internal reliability.

H2: There would be a relationship between the attitudes, subjective norm and perceived behavioural control and intention to drink

H3: There would be a relationship between positive drinker images and greater willingness to drink alcohol.

H4: There would be a relationship between descriptive norms and friends' behaviour and participant's drinking behaviour.

H5: There would be a relationship between sensation seeking and impulsivity and drinking amounts.

### **2.20 Study 3 - Questionnaire Evaluation Cross sectional Study**

A further larger scale study was conducted over a four month period to evaluate the questionnaire and check for external validity. The analyses for this study are split into two parts. Cross sectional data analyses from the baseline measures and

longitudinal data analyses from a combination of baseline and four-month follow-up measures.

Study 3 was conducted using first year undergraduate students. The rationale for using undergraduates was that they represent a group that is known for their drinking behaviour (Gill, 2002). As it is only a minority of adolescents that drink excessively (Brookes et al, 2011; McVie & Bradshaw, 2006), it was deemed likely that an older sample would be more likely to drink enabling the examination of the relationships between variables. They are also representative of late adolescence early adulthood where identity issues may still be present (Windle, Spear, Fugligni, et al. 2011). Much research has been carried out in the USA using participants within this age range (Weschler & Kuo, 2003; Perkins & Berkowitz, 1986; Perkins, 2003; Perkins 2007).

The aims of the study were to examine the reliability of the subscales, and the relationships between pre-determinants of the TPB, PWM, Social Norms Theory, and personality characteristics and intention and willingness to consume alcohol.

The cross sectional analyses were performed to test the reliability of the measures and also to observe relationships between the variables at a given time point.

H<sub>1</sub> It was hypothesised that attitudes, subjective norms and perceived behavioural control would be associated with intention to drink alcohol.

H<sub>2</sub> It was also hypothesised that positive drinker images would be related to willingness to drink alcohol.

H<sub>3</sub> It was further hypothesised that participants' drinking behaviour would be similar to their own.

H<sub>4</sub> That they would consider typical behaviour to be greater than their own drinking behaviour.

H<sub>5</sub> That impulsivity would be associated with willingness to drink and binge drinking behaviour.

### **2.20 Study 3 - Questionnaire Evaluation; Longitudinal study**

The longitudinal data was used to test the reliability and validity of the questionnaire and evaluate the threat to external validity (Campbell & Stanley, 1963, Yu & Ohland, 2010). The purpose of this study was to ensure that any external information such as education campaigns or media influences did not significantly affect the responses to the questionnaire. This means that any significant changes post intervention were more likely to be the result of the intervention.

A further reason for conducting longitudinal research was that cross sectional data does not allow for the evaluation of whether variables affect the subsequent behaviour.

This study was carried out on a group of first year undergraduate students. The rationale for using undergraduate students was two fold. The questionnaire had already been established as reliable in a pilot group of adolescent respondents and it was difficult to recruit schools to accommodate a longitudinal design. However, many undergraduates could be considered to be in late adolescence/early adulthood and also belong to a group considered to be within an at risk group for heavy episodic drinking.

There has been a plethora of research into undergraduate drinking that supports investigating the model within this particular sample population (e.g. Baer & Carney, 1998; Collins & Carey, 2007; Crawford & Novak, 2006; Jamison & Myers, 2008; Elliot & Ainsworth, 2012).

### **2.22 Evaluation of a Role Play Intervention**

The role-play scenarios were based upon the qualitative focus group research. The aims of the role-plays were to use interactive methods to challenge misperceptions of drinking norms, challenge attitudes, and increase perceived behavioural control in refusing alcohol and decrease intention to use alcohol. [They were also based](#)

within the context of their own environments that were highlighted from the focus groups.

The role-play intervention was evaluated using the questionnaire. Pre and Post intervention measures were taken. It was hypothesised that:

H6: Following the role-play intervention participants would be less willing to consume alcohol than pre-intervention.

H7: Following the role-play intervention there will be decrease in intention to drink alcohol.

H8: Following the role-play intervention the participants will report consuming less alcohol.

### **2.23 Qualitative Research Focus Group Computer Games**

The rationale for the qualitative focus group study relating to computer games was that there is a paucity of qualitative research in relation to computer games. The aims of the focus group study were to explore the opinions of adolescents regarding using games in education and the elements that make a game engaging, as an exploration of being able to transfer these comments and the role-play into a future game intervention.

### **2.24 Ethics**

The ethical considerations were based on the BPS code of ethics (2009) and also the Gillick/Fraser competency. The BPS code of ethics is based on the principles of respect, competence, responsibility and integrity. The Gillick/Fraser competency is based on a child's ability, emotional and intellectual maturity to understand what would be required in order to take part in the research (Lambert & Glacken, 2011).



The specific ethical considerations for this research are based on consent, assent, deception, withdrawal and confidentiality.

#### **2.24.1 Consent**

The BPS Ethical Code of Conduct (2009), states that participants in research should give their informed consent. Informed consent by a young participant should be within the capabilities and they should be able to understand the nature, purpose and consequences of taking part in the research. Lambert & Glacken (2011), argue that even with these competencies that it is good practice to involve family (parents/carers) in the decision making process. In this research programme, informed consent was primarily obtained from the head teachers and leaders of the youth group movement. A brief synopsis of the research background and aims was also made available to the school governors. Following consent from the head teachers and leaders informed consent was obtained from parents/carers for participants under 18 which applied to the first pilot of the questionnaire study, the focus group research and the intervention study. This consent was obtained through the use of written consent forms that outlined the purpose of the research and explained the study procedure. Examples of consent forms are included in Appendix (A).

The topic of alcohol, being a substance of potential misuse could be considered to be a sensitive subject, therefore this was taken into consideration when writing the informed consent, when introducing the research to the participants and during debrief procedures. Copies of the questions that were used in the focus group studies and the debrief information were made available at the reception desks of the schools that were involved in the research for the parents and carers to look at if they wished. They were given a period of two weeks to do this prior to the study taking place.

#### **2.24.2 Assent**

Although, assent is not legally endorsed, it is considered to the affirmation from the participant that they wish to take part. Therefore, prior to each of the studies, participants were also asked to sign a form to indicate their assent to take part in the study. For the focus group studies, a further reiteration of assent was sought. An information form was read out to the participants, including information about recording the interactions with a portable electronic Dictaphone.

#### **2.24.3 Debrief**

All of the participants were debriefed following the studies. At the end of the focus group studies they were given information about how their information would be used and if they had any questions. Due to the potentially sensitive nature of alcohol, at the end of the alcohol focus groups each of the participants were given a credit card sized information sheet with the Freephone numbers and website details for Child line and talk to frank where they would be able to seek further information or support. At all times it was made clear that the investigator was unable to assist with personal concerns relating to alcohol misuse and free phone numbers for suitable agencies were provided.

#### **2.24.4 Deception**

Deception is an important ethical consideration but for this particular research programme as the research aims and objectives were made clear in the consent forms.

#### **2.24.5 Withdrawal**

All of the participants were given information about their right to withdraw. This was included as statements within all of the informed consent forms, and

participant assent forms and in the face-to-face interactions, all of the participants were also verbally reminded. Instructions on how to withdraw were included at the beginning of the study and also during the debrief. These instructions consisted of statements to the effect of: ‘you have the right to withdraw from the study at any time, if you wish to withdraw from the study during the study please raise your hand, or exit the browser (for the online version of the questionnaire), after the study you can contact the researcher via’; this statement was supplemented with the provision of an email address. The participants were assured that if they wanted to withdraw that their data would not be included and would be destroyed. Throughout the current research there were no such requests. All of the consent forms were retained and kept in a locked draw for confidentiality.

#### **2.24.6 Confidentiality**

All of the consent forms also contained statements relating to confidentiality. All of the participants were assured that their data would be treated confidentially and that their data would be completely anonymous. In the focus groups all of the names have been changed to pseudonyms, as agreed by the participants that bear no relation to their own names. For the survey studies, envelopes were provided that the participants could seal once they had completed the questionnaire. All of the participants were asked to provide an anonymity code to use if they wanted to withdraw from the study. These anonymity codes were made up of the participants’ initials and date and year of birth e.g. LW/01/15.

Other considerations were the protection of the participants and the research venue.

The participant’s protection was considered and they were briefed on exit strategies if they felt uncomfortable at any time. The researcher also obtained an enhanced CRB certificate in accordance with school policies. The comfort of the participants was considered at all times and venues were chosen for their familiarity for the participants. The school’s and youth groups provided quiet,

private rooms for the focus groups during normal school days or group meetings. The intervention also took place within the school during a normal lesson time.

All of the research studies were submitted to the University's Research Centre for Applied Psychology (RCAP) ethical review board prior to conducting the research and supplemental ethical consent was sought for changes were made to the original focus. This included extending the focus group studies to a community based youth group and also for a different age group for the pilot study.

## **2.25 Chapter Summary**

Alcohol is often the first substance of use and early onset of alcohol use can lead to increased risk taking in adolescence, increased risk to health and continued problems with alcohol use into adulthood. Adolescence is a unique period of development in terms of biological maturation and also cognitive and personal development that interrelate to define this period as a unique transition into adulthood.

There is an obvious need to intervene in adolescent alcohol use and there have been a number of different approaches. Previous interventions in the area have either been universal school-based interventions that have tended to increase knowledge but have little effect on behaviour, or have targeted specific characteristics that have been linked to heavy episodic drinking.

The most successful interventions seem to be universal life skills interventions but these have been criticised in terms of methodological issues. Intervention design is a complex process that requires an understanding of the problem and the application of theories to it. A search of the literature has suggested that there are a number of theories that can explain alcohol use in adolescents, and that combining theories can increase their predictive validity.

Social influences seem predominant in adolescence, as it is a period of maturational and developmental changes. Relationships with peers are influential in shaping identity and misperceptions of peers drinking norms have been demonstrated to predict heavy episodic drinking behaviour. Personality characteristics, particularly sensation seeking have also demonstrated a link to adolescent binge drinking behaviour. This may be due to novel seeking behaviour but is also linked with the expectancies of its effect.

In order to design an effective intervention that could be used as a universal school-based intervention to prevent alcohol misuse, it is important to have an increased understanding of what adolescents think about alcohol and alcohol use and how it relates to their experiences in their social environments. This insight would enable an informed choice of theory to form a theoretical framework on which to underpin the design and evaluation tool to assess its effectiveness.

Therefore it is proposed that there needs to be a theoretical framework to underpin adolescent risk behaviour interventions, that is transparent and has demonstrated some success in predicting or changing health related behaviour. A search of the literature relating to theoretical models to explain risk behaviour such as alcohol consumption was conducted, which revealed dual processing models of understanding risk behaviour and the effects of social relationships and personality factors. Social influence has received much attention in the literature that links to social identity theory and consideration of the social cure (Haslam, Jettten & Haslam, 2012).

This chapter has sought to outline the research process for the current research programme. It has provided a description of each of the 5 studies and the research hypotheses for each stage of the approach to test a framework for intervention design and evaluation, and the development and investigation of an interactive intervention. The final part of the chapter is a discussion of the ethical considerations for the programme of study.

## **Chapter Three**

### **Focus Group Studies**

#### **3.1: Chapter Overview**

This chapter is concerned with the qualitative research conducted to gauge young people's opinions relating to alcohol and adolescent alcohol use. The chapter is set out into several different sections. Section 3.2 outlines the background to the study and the rationale for the chosen methodology. The following Section 3.3 sets out the aims of the studies and the research questions. Section 3.4 is concerned with describing the methodology used and section 3.5 describes the process of analysis, and a discussion of the emergent themes. Section 3.6 then goes on to present a further study with a group of older participants, and a discussion of themes and comparisons.

#### **3.2: Background**

There is an increasing amount of literature relating to the predictors of intention and willingness to engage in alcohol use in adolescents and young adults (Marcoux & Shope, 1998; Jamison & Myers, 2008; Gibbons, Gerrard, Ouellette, et al., 1998). However, there is a paucity of qualitative exploration of the relationships between alcohol use, the typical images of alcohol, the influence of peer social norms and the types of scenarios and environments for drinking. Previous research has described the creation of their own drinking spaces (Hyde, Treacy, Boland et al., 2001), and has explored the prototype willingness model (Davies, Martin & Foxcroft, 2013), but there is no known qualitative exploration of how multiple factors could be translated into an engaging intervention.

### **3.3: Gaining young people's perspectives to inform interventions**

There are numerous methods for conducting qualitative research but focus groups are a popular alternative to conducting interviews with young people. Focus groups tend to be small, structured groups that are facilitated by a moderator and hence could be considered as a structured discussion (Litosselti, 2007). They tend to be informal in nature and are a bottom up approach to exploring the individual's reality rather than there being a single objective truth (Kitzinger, 1995; Braun & Clark, 2006).

Focus groups are a good example of a non-threatening environment for participants to share ideas and perceptions of a topic (Kreuger, 1994; Litolesseliti, 2003), particularly in groups where participants are already familiar with each other. In contrast to an interview, focus groups can offer a more naturalistic setting for the exploration of ideas and offer a parody of real life where participants can influence and be influenced by others (Kreuger, 1994). This would seem especially useful for a topic where the opinions and behaviours of others may have an influence over that behaviour as with drinking and adolescence (Perkins & Berkowitz, 1985; Lewis & Neighbours, 2006). However, it should be noted that, although a group environment may translate into participants' willingness to engage in a topic and feel more relaxed and open, depending on the sensitivity of the topic it could also have an inhibitory effect (Kitzinger, 1995).

Focus groups are also useful in determining the language and issues of the topic to the particular group and can be deemed to be a more naturalistic approach than interviews. Participants are encouraged to talk to each other rather than focus on answering questions and so in this way the group generates its own questions and it is this interaction between the participants that generates the data (Barbour and Kitzinger, 1999).

### **3.4: Study 1**

This chapter details the methods and findings of two focus group studies. The first study was with young people aged between 11-15 years old and a further study with participant aged 18-23. The aims, research questions, methods and findings for each of the studies are detailed below.

#### **3.4.1: Aims:**

- To gain further understanding of the prototype images and social normative beliefs of alcohol use held by adolescents aged 11-15.
- To gain further understanding of the types of environments in which adolescents drink alcohol.

#### **3.4.2: Research questions:**

What are the beliefs and attitudes of adolescents towards alcohol use in themselves and their peers?

What types of environments do adolescents drink in?

#### **3.4.3: Methodology**

A sample of 12 (8 girls and 4 boys) aged between 12 and 14 years with an average age of 13.8 years were selected from local secondary schools. Following ethical approval from the University of Bedfordshire's Research Centre for Applied Psychology's ethics committee, the schools were selected from a list of schools presented on local authority websites. In all 25 schools were approached. Five schools were chosen on the basis of their willingness to support the research, with three schools subsequently able to accommodate the study with their head teacher's approval. Therefore the participant sample was from three schools in the South East of England. The adolescents initial contact with the study was through their link teacher, as it was felt that this would bring credibility to the study and reassurance to parents. Due to the involvement of the link teacher in the recruitment process, it is not known how many refused to take part in the study. All of the participants had parental/carer informed written consent to take part.



In acknowledgement of the potential influence of the school environment on the way that the participants contributed, the study was extended to include a more social environment. A sample of 15 adolescents, (11 boys and 4 girls), aged between 11 and 14 years of age, with an average age of 13, were selected from a local district of an international youth organisation. The international youth organisation was selected due to the investigators involvement as a leader within the organisation with a required CRB certificate of enhanced disclosure. However, the investigator did not know any of the participants prior to the study. The groups were selected from the local district with the District Commissioner's consent and three were chosen for their willingness to accommodate the study in their normal meeting place, within their normal time for meeting. Selection of participants continued until saturation was considered to be met. Within the youth organisation, participants were introduced to the research by the investigator and those that wanted to take part took home a consent pack for their parents/carers. The consent pack contained information pertaining to the purpose of the study and how the study would be conducted and reported.

In total there were 8 separate focus groups, consisting of 3-5 participants in each group that took place in the respective school or group environment. Six of the participating groups were made up of participants of both genders. One group was a self-selected focus group with female friends and a further group was self-selected group of male friends. All of the focus groups with the participants' permission were digitally recorded.

The same format for the focus groups was used across the study with the investigator starting with an ice breaking exercise and a reminder of the confidentiality of the discussions, the right to withdraw and anonymity of reporting. For all of the focus groups a semi-structured approach was used. This approach was favoured in this instance, in order to encourage discussion, and to keep the discussion on topic. All of the participants were invited to speak freely, but to refrain from talking over each other. The investigator used the same five questions in each of the groups as a topic guide. The questions were: '*What do*

*you think about alcohol?’, ‘What are your thoughts about people your age drinking alcohol?’, ‘How would you describe people your age who drink alcohol?’, ‘Where might people of a similar age drink alcohol?’, ‘In what type of situation might a person of similar age to you drink alcohol?’.* Questions are not always necessary in focus groups in fact within adult populations researchers have often found more novel ways of encouraging a more naturalistic discussion e.g. using a vignette (Barbour, 1999). However, with younger populations, it may be difficult to stimulate the conversation and the questions were designed to get them talking and encourage continued interaction.

At the close of the 20 minute discussions, participants were thanked for their time and were given an opportunity to ask any further questions about the study. Due to the sensitive nature of alcohol, all participants were given a wallet sized information card containing Freephone numbers for Childline and Talk to Frank.

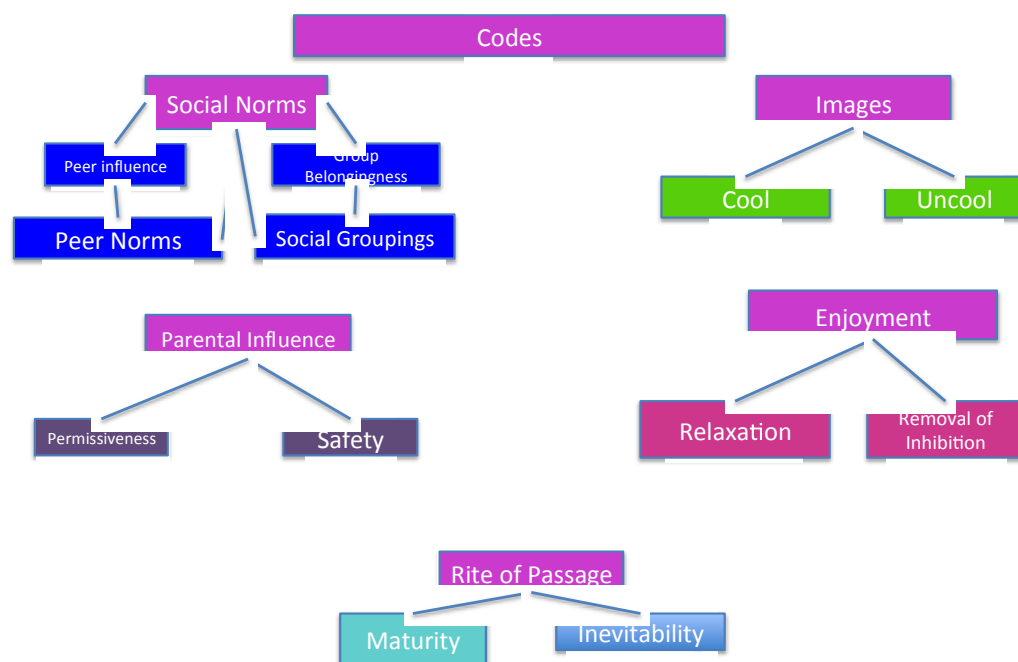
The recordings were transcribed verbatim and collated according to age for similarity of content and ease of analysis.

#### **3.4.4: Process of Analysis**

The data was analysed using thematic analysis, which is a way of identifying an analysing themes, or patterns within data (Braun & Clarke, 2006). An advantage of this approach is that it allows the researcher to follow a mixed method of both deductive and inductive approaches, (Boyatzis, 1998). Due to the prior knowledge of the researcher of the different theoretical approaches that underpin the thesis and the semi-structured nature of the focus groups, it cannot be described as a purely inductive approach. The investigator both facilitated the focus group discussions and conducted the thematic analysis, and it could be argued that this process had begun during the experience of researching the area, listening firstly within the groups themselves and then during the translation into a written document [as well as during the coding of the data.](#)

The data was coded and analysed by the investigator. The five step inductive thematic analytic approach was used to develop codes as described by Boyatzis (1998). Firstly the raw data was paraphrased to make it more manageable to compare across focus groups. Overarching themes were highlighted and compared across all subsamples and then codes were created to categorize the themes. The codes were driven by the researcher's immersion in the data and the themes identified but were labelled in a way that would reflect and be recognised by the current adolescent alcohol theory and literature. It is this immersion in the data and the researchers knowledge within the field that drives the coding of the themes. The coding process was a reflexive process that involved the immersion in the data both during and after the data collection. Braun and Clarke (2006) maintain that there is no accurate way to code the data as it involves this reflexive process and that there is no logic to inter-rater reliability in these instances. Inter-rater reliability is only relevant when there is a specific framework for coding. In this instance the coding was induced by research process. Therefore, the reliability of the codes were checked by applying the codes back to the data in the fifth stage of the process described by Boyatzis (1998).

The main codes that were identified within the data were related to social norms, images of alcohol and those that drank alcohol, parental influence, enjoyment of alcohol and rites of passage (see Figure 3.1 below). These themes are supportive of the current literature and theories relating to risk taking behaviours and adolescent alcohol use and are discussed in relation to the social norms theory (Perkins & Berkowitz, 1986), the Theory of Planned Behaviour (Ajzen, 1991, 1997), alcohol expectancy theory (1975, 1980), and the prototype/willingness model (Gibbons & Gerrard, 1995, 1997)



**Figure 3.1.** Thematic map of young people’s attitudes and beliefs towards drinking alcohol.

The discussion of the themes is included under the headings of the category code. All of the quotes have been made anonymous, with the use of pseudonyms to protect the identity of the participants.

#### 3.4.4.1: Enjoyment

One of the primary descriptors of alcohol [and the responses that tended to be offered to the first question](#) that were identified in groups that contained drinking participants was related to enhancing enjoyment of social situations. Alcohol was described in terms of enabling relaxation and enjoyment of the situation. This is represented by Sheila, (14) who said; “*it’s a good way to have fun*” and, by Amanda (14): “*it makes you more relaxed*”. Alcohol was described as a means of removing potential inhibitions to enjoyment, and enabling people to enjoy themselves e.g. Grace (14) summed this feeling with; “*it makes you have a really good time, everyone is like happy*”. It seemed to form a central component to social situations with Bob (14) saying “*I would be bored if I wasn’t drinking*”,

and it was expressed as way of making people feel “better”, “happy” and free from “worry”. In trying to describe or capture that feeling Susan (14) stated: “*it’s like that extra bit of whoo*”. In talking about their drinking expectancies and experiences they seemed to be making a distinction between their drinking group and others that did not drink. There was a shared idea of positive alcohol expectancies, (Goldman, Del Boca & Darkes, 1999) among drinking participants in that the participants seemed to share a common expectancy that alcohol would help them to feel relaxed and less self-conscious in social situations. These types of positive expectancies have been previously linked to alcohol use (Leigh & Stacy, 2004).

#### **3.4.4.2: Social Norms**

Whether participants were drinkers or non-drinkers seemed to be related to the participant’s social norms and the social groupings that they belonged to. The views expressed depended on where they considered themselves to be within their social groupings using prefixes of “we” and in “*in our group of friends*” to begin statements. This seems to reflect a salient social identity, with the friends perceiving other ingroup members as being part of the self (Haslam, Eggins & Reynolds, 2003).

Opinions tended to be expressed in relation to a group more often than at an individual level. The groups varied in levels of friendship but the two single sex groups consisted of close friendship groups. The female participants particularly sat very close to each other, often finished each other’s sentences, and tended to agree with each other. The following example is an exemplar of how this group interacted;

*Amanda (14) “ but you shouldn’t have too much at our age”*

*Grace (14) “No, there is like a limit”*

*Sheila (14) “that’s not just at our age”*

*Amanda and Grace “No”*

This kind of interaction was unique to this group of friends; other groups consisted of similar age peers, but not specifically friendship groupings. It was

apparent from these interactions that the behaviour and opinions of those around them influenced their opinions and behaviour. In one group there was a distinct difference of opinions with participants belonging to different social groupings having differences of opinion. The dominant member of this group was a female drinker (Susan, 14) who expressed the opinion that *“everyone likes getting drunk”*. Her own expression of her close friends drinking behaviour and their wider group of friends was *“everywhere you can and every weekend”*.

Susan went on to talk about her own social group’s pattern of drinking: *“there are four of us, um it depends on how much you can get and what you can get, like I have a lot of wine at my house and my older sister does buy me drink occasionally. The four of us will probably have a couple of bottles of wine, a small bottle of vodka and some alcopops.....so yeah....I’m really embarrassed, someone else say something now”*. What was interesting about this was that she expressed embarrassment about what she was saying at the end. This could have been because the other members of the group were not nodding but were sat in silence and there was a long pause after her disclosure. This seemed to indicate that this was not a shared experience but was personal to the individual group and perhaps an example of peer influence with the other members not wishing to contradict a more dominant group member. It could also be an example of the misperceptions of how much other peers drank, as described by Lewis and Neighbours, (2006).

Sarah was perhaps aware of her own group behaviour and may have made assumptions about the behaviour of other groups. This further excerpt supports this; Susan, (14) *“ Yeah, I think so, maybe not at the older age because you start to drink more but the people I know have never tried anything because they would never go near alcohol until they were allowed or something because they are still quite young but I think for a lot of people they look forward to going out and getting drunk at the weekend and they like say ‘I’m getting drunk at the weekend’, the majority want to get drunk”*. Here Susan seemed entrenched into her own behaviours, which were reinforced by the images of other perceived drinkers and

non-drinkers (Gibbons & Gerrard, 1995, 1997). Other members of the group did not acquiesce, but responded with a non-committal “mmmmmm”. This may have been because they did not want to identify or be identified with the more negative image of the non-drinkers as portrayed by Susan.

#### **3.4.4.3: Images**

A further theme identified was around the images that drinkers and non-drinkers held of comparative groups. The drinking participants tended to be the older participants and described people that were alcohol drinkers as fun and cool:

*“It’s fun” (Greg, 14)*

*“Everyone likes getting drunk”, (Nicola, 14)*

*“ I think it is a good way to have fun personally”, (Grace 14).*

However, among the participants taking part, it was not cool to be sick and those that drank excessively, or in public were considered stupid. The drinkers tended to defend their drinking behaviour by comparing their behaviours to those drinkers that drank more excessively or in a riskier place;

*“ they like go out drinking every weekend Friday and most Saturdays whereas our group do it like once a month and none of our group would get completely ledged” (female, 14);*

*“ I choose not to drink on the street.....drinking at the rec for example is quite sad” (female, 14).* Non-drinkers tended to think drinking alcohol was ok in moderation, or when you were older e.g. *“it’s alright when you are older” (Nicola, 12);*

*“It’s good but in reasonable doses” (Jake, 14),*

But some considered alcohol consumption at a younger age to be stupid;

*“I think it is stupid” (Joseph, 12);*

*“um stupid” (Fred, 11).*

One 14 year old male participant reported that he felt that it was a small minority that were binge drinking and that he did not know anyone who did, and he felt that young people were given a bad press;

*“ It’s just certain people making us all look bad” (Simon, 14).*

“I think that alcohol has become known as a relaxation and a way to enjoy yourself”, (Roland, 13).

Accordingly, it would seem that the beliefs that participants held about drinking behaviours varied according to their age and peer group. Those young people who admitted to drinking seemed to hold beliefs that everyone of their age drank, and enjoyed drinking alcohol e.g. *“I think everybody drinks, different groups drink more or less”*, (Greg, 14). They seemed to think that the differences were that it just varied in the quantity that was consumed. Drinking behaviour, beliefs and attitudes depended on their group membership, and it was important to *“fit in with the group”* (Jake, 13) with a sense of collective identity and concurrence. This peer influence seemed to be an important factor in drinking behaviour and one of the reasons given for adolescent drinking was *“fitting in”* (Sarah, 14). This was supported by several of the participants who expressed that this was a reason for consuming alcohol: *“a lot of people do it to fit in, yeah”* (Sarah, 14). *“they think that they are cool”* (Female 14). Another younger participant (Nicola, 12) said : *“you just want to be doing what they are doing”* and Patricia (12) added *“you don’t want to be bullied or anything”*. Some of the participants actually talked about peer influence in terms of peer pressure and this was given as a reason by non-drinkers as a reason to start drinking alcohol, and it was particularly interesting that these participants tended to be male; *“I think that the first time you get drunk you might feel pressured to drink more”* (John, 14) or as this young male put it; *“parties and peer pressure that is the main thing, when you have got your friend’s around you, you want to look the coolest”* (Roland,13) or *“peer pressure, thinking that it’s cool, seeing people drinking all the time.....trying to stand out from the crowd”* (Jake, 13). Drinkers, on the other hand tended to make the point that they did not feel pressure to drink and that drinking was a choice as this excerpt depicts:

Sheila (14) *“well I wouldn’t like drink because everyone else did, if I wasn’t drinking and they said why aren’t you? I wouldn’t do it because of them”*

Amanda (14) *“no but if I was drinking and they said why are you I would be like well I want to join me or not”*



Grace (14) *“but if all of my friends were not drinking I wouldn’t be like oh why are you not drinking, it’s up to them”*

Sheila *“you shouldn’t just do it because someone tell you to*

Grace *“there is no pressure in our group you just do what you wanna do”*

This seems to indicate that self-image and the perceived images of alcohol use and the friends that are around are influential in drinking behaviour adding support to the importance of social norms (Perkins & Berkowitz, 1986) and the PWM (Gibbons & Gerrard, 1995, 1997).

The images that were held about drinkers and non-drinkers were rated compared to their group’s behaviour, younger non-drinkers considered drinking to be “stupid” (Sally, 12), whereas older drinkers considered drinking “cool” (Greg 14); *“when you are with your friends you want to look the coolest.....if you are seen at a party with a bottle in your hand then obviously you are the one to look up to”* (Roland, 13). Each drinking group managed to justify their own drinking behaviour by describing others drinking behaviour that was worse than their own. An older female participant (Amanda, 14), who was a drinker, described a scale of “stupidness” attributable to drinking and social groupings, those that were stupid were those that were drinking and making public displays of their drinking behaviour by vomiting or other drunken behaviour; *“there is stupid and then there is really stupid...and then there is our tiny little group who don’t really go over the top”* (Amanda, 14). Even younger non-drinkers stated that alcohol consumption depended on: *“their friends”* (Nicola, 12), and, *“the people they hang around with”* (Patricia, 12).

These discussions around groups revealed a complex social stratum of their adolescent world. One male participant (Jeff, 12) had this to say about the social groupings: *“there’s the cool kids, I’m not one of those, they are all probably drunk and stuff, they all hang around together and everyone thinks they’re cool”*, although this was challenged by another female; “why?” (Rachel, 13). His response was; *“I dunno, they just are and then there’s the people that I hang around with who are intelligent but not really cool, and then the group that I feel*

*really sorry for, the unintelligent ones that no-one really talks to*” (Jeff, 12). This could be a representation of intergroup behavioural processes, with the Jeff talking about his own social identity (Tajfel & Turner, 1979) and categorizing the other groups accordingly.

Again, peer influence was also in evidence in the groups themselves when discussing images of alcohol. The groups of participants tended to share agreement, this was possibly because they were picked from the same social groupings but could also be evidence of some conformity to the group representations. This excerpt between two of the youngest participants is an example where this might have occurred;

*“I think they’re stupid”, (Joseph, 12)*

*“I think they’re pathetic”, (Patricia, 12)*

In this instance they both seemed to agree on this more negative image [which on reflection seemed to link to social identity theory and favouring their own group membership by drawing distinctions between their in group and other out groups.](#)

#### **3.4.4.4: Rite of Passage**

However, even among the younger non-drinker there was a sense of inevitability about drinking. *“Unless they ban it I think I am guaranteed to get pissed one night and there is no stopping that”, (Roland, 12).* They might not be drinking now but could see that they would be drinkers of the future, and could predict an age when drinking might begin. This seems to fit with evidence that suggests that drinking is a rite of passage to adult hood (e.g. Crawford & Novak, 2006). Indeed, the participants seemed to consider drinking as part of maturation and learning how to handle drink was related to levels of maturity. Several participants across groups talked about being able to drink and not vomit. *“I think that it is disgusting, you should be able to hold your alcohol, it’s embarrassing I mean if you are round someone’s house and start being sick” (Susan, 14).*

Being able to handle drink was considered as a sign of maturity: *“ everyone should know how much they can drink and how much they can handle” (Grace, 14),* and non-drinkers were viewed as less mature.

The responses when asked where young people might drink were varied. Young people are unable to drink in pubs or clubs and seemed to report creating their own drinking spaces. The theme captures reports of where participants themselves consumed alcohol or knew or had heard reports that young people drank alcohol; Home, house parties, public places such as woods, back of parks, in the bushes at school. Most of the drinking participants reported doing their drinking at home or at a friend's house.

*"I know a lot of people in my year who like go out to the park every Friday night but I am not a big fan of that um normally my mum lets me like have people round and we sit in and drink and my mum would prefer that and I think that is what my friends mums are like aswell" (Sheila, 14)*

The participants knew of other groups of young people who drank in other spaces but most participants viewed drinking in parks and outside spaces as a risky behaviour:

*"but at our age I dunno because the rec is people like just drive in and they could just like get taken and you wouldn't really know and you just get cold and numb because you wouldn't feel it (Sheila, 14).*

Likewise, they viewed these drinkers in a more negative way than themselves, as in this example:

*"I just think that like drinking at the rec for example is just quite sad, I know it's still quite sad drinking in your house but you are inside and you can play music", (Sheila, 14)*

#### **3.4.4.5: Parental Influence**

Safety was a theme that was more prevalent in the female drinker discussions, although younger participants also talked about it. In the older drinking participants, safety was mentioned in relation to parental alcohol attitudes and behaviours. Older participants particularly the female participants, who were alcohol consumers, talked about parental influence on their behaviour. This included provision of alcohol and providing environments for drinking. The role of the parent as provider and protector is exemplified in the following extract;

*“ A lot of people in my year who like to go out go to the park every Friday night...normally my mum lets me have people round and we sit in and drink.... my mum would prefer that and I think that is what my friend's mums are like too” (Sandra, 14).*

It was the female participants who tended to talk a lot about safety. They professed that their parents' preferred them to drink at home in a safe environment than in an outside area where they may be open to more risks;

*“You are like really vulnerable like you don't know what you are doing” (Grace, 14).*

In order to provide a safe environment for drinking parents were reported to be willing to help provide environments for drinking;

*“Parents know that you are drinking 'cos they like get it for you” (Sheila, 14).*

They also talked about parents setting the boundaries for drinking and parent's own drinking behaviour;

*“When we go out with my mum's friends and dad's friends.... they are like slightly tipsy and then they will offer me some”(Amanda, 14).*

There was also discussion about maturity and boundaries being set by parents;

*“The year 11's have parties nearly every week and their parents let them.....when you go to year 11 parties everything is different they seem to respect a bit more than what our year does they always seem to like no-one I mean everyone seems to know how to behave at a house party they seem to know what you can and what you can't touch even when they are drunk like it seems much more better, that's not a word”, (Grace, 14).*

*Grace: If your parents say no you are not allowed it*

*Amanda: It's gonna make you want it more*

A further theme was that of willingness (prototype/willingness model). Participants stated that if they were offered alcohol either at family celebrations or amongst friends then they had or would try it e.g.

*“ If you wanna have a good night then you might take it (an offered drink) to increase your chances” (Jake, 13).*

Two of the 14 year old male participants stated that if their friends were drinking then they would be more likely to drink themselves. “ *It really depends on what mood you are in, because if you are having a good time and you are with a lot of friends, then you don’t want to back down because you don’t want to look a wimp or something*” (Roland, 13);

“*You are offered the opportunity. ...And you take it because it tastes nice*” (Jake, 13).

“ If my friends were drinking I would be more likely to drink”, (Paul, 13).

These illustrations seemed to relate to behaviour in social situations and seemed to suggest that given the right set of circumstances they would be willing to try alcohol. This is consistent with the prototype willingness model (Gerrard & Gibbons, 1995, 1997). There was also an expression of positive expectancies of the experience e.g. with the ‘tastes nice’ comment and the normative influences of the social gathering. This also supported the theory of planned behaviour (Ajzen, 1991), and expectancy theory (Goldman et al, 1999).

There was also evidence of the social normative influences within the discussions. The in group and out group expressions suggested by the conversations around “our little group” would seem to support social categorisation and social identity theory (Tajfel & Turner, 1979). This links with literature suggesting that descriptive norms predict behaviour (Dalcin et al, 1999).

#### 3.4.4.6. Discussion and Reflexivity Account

On the whole, this first set of focus groups with school-aged adolescents seemed to support previous literature and emphasised the importance of groups in relation to social identity and normative influences from peers and parents. It also captured the attitudes and expectancies in relation to alcohol use.

However, as the principal investigator who was present at the focus groups I was aware of my own bias within the process. Although I have had previous experience of conducting thematic analysis this was my first experience of conducting my own focus groups. Although I had a loose structure encourage

discussion I tried to employ active listening skills to encourage the sharing of information. Having knowledge in the area could have potentially biased the discussion as I could have attended to the information that supported theory rather than the seeing it from the participants viewpoint. To try to account for some of this potential bias the questions were planned prior to the session and were used to encourage further discussion. I also reflected back summaries of what had been said to check understanding and give the participants an opportunity to correct any misunderstandings.

Having prior experience of leading a youth leader was invaluable in feeling confident in engaging the young people within the process. The setting was also important. To try and make the participants feel at ease and comfortable the focus groups were either conducted in the school environment or at the meeting place for the youth group. This also satisfied the gatekeepers and ethical requirements. It was noted however that within the school environment the young people seemed less relaxed and more guarded in some instances and so it was decided to include focus groups in a less formal environment.

Even though we did a warm up exercise to help everyone to feel more comfortable I was very much considered the outsider and in all of the groups the participants positioned themselves together and opposite to me, even within the less formal spaces afforded by the youth organisation. In some instances they talked with each other and I became less significant within the group and they talked more openly with each other. In other instances the participants played up to me as their audience and joked around and tried to be more shocking. It was sometimes difficult to encourage discussion and guide the participants back to the topic areas.

Having prior knowledge and being an adult within an adolescent environment would have affected the responses and the way that they were interpreted. In terms of the reliability of the coding and interpretation were performed by a single investigator. According to Newman, Rothlingova, Gutteridge,

LeMarchand and Raphael (2011) the interpretation of one researcher should be acceptable within a constructivist framework as it enables the interpretation to contain the nuances and meaning that may be missed with a cold interpretation.

Based on previous literature that emphasised the period of adolescent development could extend into student years (e.g. Windle, Spear, Fuglini et al., 2011) especially in relation to impulsivity, a further focus group was carried out with volunteer first year undergraduate students.

### **3.5: Study 2**

This is a period when students and alcohol use are synonymous. It is also a time period where there is the largest use of alcohol in USA amongst college students (Perkins & Berkowitz, 1986).

#### **3.5.1: Aims**

To understand the opinions of older adolescents/young adults viewpoints on alcohol.

#### **3.5.2: Methodology**

Following ethical approval from the research centre for applied psychology, students were recruited from the University to take part in the focus group. Students were recruited by advertising on the student notice boards. Several focus groups were planned but were unsuccessful in recruiting participants. Nine students turned up to the final focus group and although this group was larger than expected and the previous study, all of these participants were willing to take part. The final focus group consisted of 9 participants aged 18-23 with a mean age of 19.22 (SD1.56). There were three males and six females in total. All participants consented to take part. The focus group was recorded with assent and transcribed into a word document. The transcriptions were coded and the themes identified as

previously described. The main codes that were identified within the discussion are depicted in Figure 3.2.

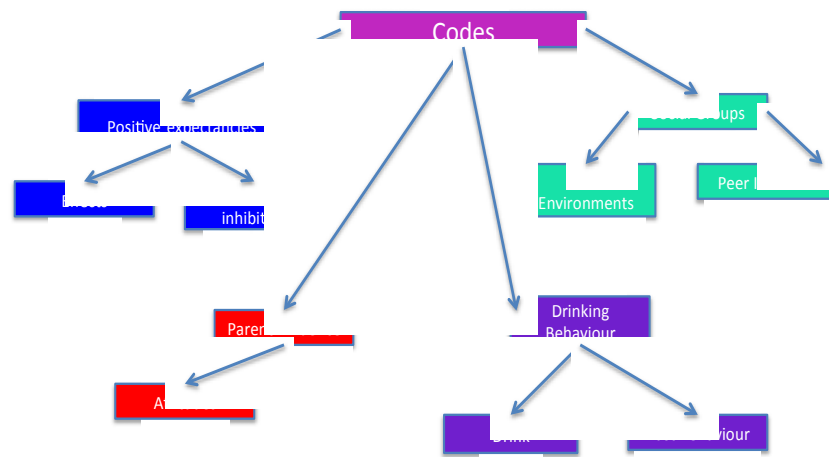


Figure 3.2 Thematic map of student's attitudes and beliefs towards drinking alcohol



### 5.5.3: Analysis

#### 5.5.3.1: Social groups

The first thing that was mentioned in response to thinking about alcohol was social groups and friends and in this way was similar to the previous younger sample of participants. It seemed that friendship groups still play an important role in alcohol experience within this age group, and group membership and group behaviour seemed to determine drinking behaviour and the way that they expressed this was similar e.g. Freya (20) says “ *I think most of our age group maybe don’t seem like responsible with their drink kind of thing, whereas my friendship group we don’t go out and specifically go out to get wasted, we do it to have fun and we know our limits, whereas other people take it a step too far*”.

Here Freya is talking about the behaviour of her own close circle of friends and describes the norms of behaviour for their group, or descriptive norms (Perkins & Berkowitz, 1986; Gibbons & Gerrard, 1995, 1997) prompted with “we” and “our”. This excerpt was also reminiscent of the earlier focus groups and in retrospect could also be an example of social identity theory (Tajfel & Turner, 1972).

#### 3.5.3.2: Positive Expectancies

The group itself were also friends and there seemed to be a consensus surrounding expectancies (Christiansen, Goldman, & Inn, 1982; Goldman, Del Boca & Darkes, 1999) of the effects of alcohol and the enhancement of the social situation. This was also similar to the discussions in the previous focus groups with the younger participants; although the language used was different e.g. Julia (23) talks about “ *Being really wasted*”. The effects of the drink seemed to have more weight than the taste; “*The effect of the drink, not the actual drink*” (Sid, 19), and increases in social abilities, confidence and relation as described in the conversation between these participants;

*Freya (20) it helps you to loosen up*

*Jeff (19) it's like a confidence thing*

*Sienna (19) it relaxes you around people*

*Pippa (19) you are more willing to make friends and socialize*

*Julia " I like being drunk, I just don't like the taste of alcohol"*

These expressions were also similar to the younger sample and suggest similarities between drinkers cross these age groups relating to expectancies of alcohol use.

### **3.5.3.3: Drinking Behaviour**

What they chose to drink also shared some similarities. They talked about starting on types of alcohol that were "*light*" (*Sid*,) and not "*the heavy stuff*" (*Pippa*) like "*WKD*". This type of alcohol was described as "*like a bottle of lollipops*"(*Sid*), and as another participant pointed out "*It doesn't taste like alcohol*"(*Sienna*). Their current drinking tended to be "wine" (*Sienna*, 23) or "spirits" (*Jeff*). *Julia* "like a cocktail, when you can't taste it, like I can't stand the taste of it".

The consumption of alcohol seems to be constructed around social occasions as *Hugo (19)* points out; "*I can't think of any kind of social event where people don't drink.....if you go out to a party you drink, if you go to a BBQ or if you go out to a little social gathering, I dunno, it's what people do*". Hence it would seem that it is considered to be a normative behaviour that is shared with others in social contexts; *Freya* "*I don't go to places specifically for the alcohol, I go there because the people are there*". The emphasis here seemed to be placed on the sociability of the event rather than the alcohol per se as *Sienna* said; "*you are not just sitting on your own with a bottle of wine or whatever, you are with people and doing things*". Here *Sienna* seems to be indicating that drinking socially is acceptable whereas drinking alone may be considered more negatively. Even though *Jeff* stated that: "*we stay home and drink if we are bored, we might have a bottle of wine when we are revising*", it was still given a social context wherein it was a group event, rather than a singular event.

*Julia “we do that a lot”*

*Jeff “ we don’t get wasted”*

They talked about and compared themselves to their images of younger drinking participants and their drinking environments. The perception of where younger people drank was related to outside spaces, e.g. *“The park”, (Cathy, 19). Freya (19) points out that outside spaces are “where younger people go that can’t get into pubs or clubs”*. The way that these young people were discussed suggested that this was a more negative image of drinking behaviour and were discussed in a way that was not related to their own group behaviour e.g. *Cathy “ back home I know people younger than me that go down the beach because there is nowhere for them drink, so they will do it at night time a bit like the park” and Sienna “ sometimes you see people who are about 15 on the street and they are absolutely wasted, and you think Oh my God, anything could happen to you...I started drinking like a beer or cider when I was 15 but I never got absolutely wasted..it makes me feel worried for them”*

#### **3.5.3.4: Parental Influence**

There was also much discussion around the theme of parental influences to their own and other’s drinking behaviour, which is demonstrated in this snippet of conversation;

*Julia (24) “ I used to stay in, my mum used to let us drink, so all of my friends used to come to my house”*

*Cathy “ My mum was strict, she would let me have some at New Year and Christmas but I didn’t turn 18 until June and because it was so late there wasn’t really any time for me to go out and drink”*

What was interesting here was how Pippa responded, despite the previous comment from Cathy who talked about not being allowed to drink;

*Pippa “ I have found that people who have controlling parents are the ones that end up drinking more when they are 18”*

It seems here as if Pippa is thinking about an alternative group and not considered that this may be a group that Cathy once belonged in.

The parental influence also involved discussion around the idea that those that drank were exerting some authority in their transition to adulthood, although younger participants did not mention this as a reason for drinking. These assumptions or beliefs about drinking behaviour seemed to stem from experience of non-rebellion e.g. *Sienna “ My parents were really relaxed about me having alcohol, they would never let me go out to the park and drink but if I drank at home and they were around or had friends round they didn’t care...as they were so relaxed I didn’t push it”*. This was echoed by Sid who said; *“ My parents didn’t have any rules about smoking or drinking and because she was so relaxed about it when I was 18, I didn’t have the urge to go out and get drunk”*(Sid, 19).

Current drinking practices were related to current circumstances, the friends that they had made and the social opportunities.

*Pippa “ I used to go out every weekend, get absolutely smashed....it’s all changed since being here”*

*Sienna “ we probably don’t have the access because we don’t live at Uni”*

However, Sid talked about the friends that he had made and admitted that if he had made friends that went out drinking more then he would be drinking more. *“The kinds of friends like I make they don’t live on campus, if they did I would probably go out drinking more with them”* (Sid, 19). This supports that the drinking behaviour of friends affect an individual’s own drinking behaviour and that being surrounded by non-drinking associates can affect drinking norms (Weschler and Kuo, 2003).

### **3.6 Reflexive Account**

The students were far more at ease than the younger participants and this could have been due to their familiarity with sharing information in their tutorial groups and within the counselling lab where the focus group took place. They all seemed willing to share with each other and the group was formed within a circle without barriers and contrary to the previous group, I was included as part of this circle. This may have been due to their comfort and familiarity with talking with other adults as they were at the end of their first year.

As I had previously analysed the data from the previous focus groups prior to conducting this focus group this may have affected my interpretation of the data and the themes that were identified. I was very aware when the discussion seemed to mirror aspects of what the younger group had said such as where they drank when they were younger. I tried to control this bias by using encouragers to keep the participants talking and using exact phrases that they used when reflecting back to check understanding.

I was also aware of this bias when coding the data and was careful to check the themes and codes by trying to apply them back to the data as previously described.

### **3.7 Discussion**

There had previously been a paucity of qualitative exploration of alcohol use within adolescents, and in order to design an effective intervention for this age group it was considered important to understand alcohol within the context of the adolescent world. Therefore, the aims of this focus group study were to gain further understanding of the beliefs and images held by adolescents in relation to alcohol use and the environments in which drinking might take place.

The focus groups were conducted with 11-14 year olds and 18-21 year old male and female participants, which were representative of the age of onset of alcohol use (Brookes et al, 2011; McVie & Bradshaw, 2006) and the student population

renowned for their excessive alcohol consumption (Gill, 2002), and who were also able to provide a retrospective view of their adolescent experiences.

The thematic analysis revealed a series of themes and subthemes. These were enjoyment, with sub themes of relaxation, removal of inhibition and rite of passage; social norms, with subthemes of peer influence, peer norms, group belongingness, and social groupings; images, with subthemes of cool and uncool; parental influences, with subthemes of safety and permissiveness. These are shown in Figure 3.1 (Chapter 3).

The enjoyment of alcohol or the effects of alcohol was a primary theme among the drinking participants in terms of relaxation and removal of inhibition. There was a shared expectancy about the outcome of drinking behaviour. These types of positive expectancies have previously been linked to alcohol use (Leigh & Stacy, 2004) in terms of onset and subsequent use (Goldman, Del Boca & Darkes, 1999). Alcohol expectancies are described as associations that are formed between mental representations that are stored in long-term memory (Moss & Albery, 2009). These mental images seem to be present from an early age for example early work in this area suggested that young people that were as young as 7 held similar expectancies as adults and would expect positive effect after drinking alcohol such as a reduction in tension, and the enhancement of social interactions (e.g. Christiansen, Goldman, & Inn, 1982). In the current research these expectancies were supported with the participants talking about being “more relaxed” and “having a good time”, with people being “more happy”.

In terms of the current research the theoretical concept of expectancy was linked to the theory of planned behaviour (Ajzen, 1991). The TPB was developed on a number of motivational theories but includes the expectancy-value model. Expectancies within this model are linked through the relationship between motivation and behaviour (Fishbein & Ajzen, 1975). The expectancy of the effects/outcomes of the given behaviour and are linked with attitudes, a pre-determinant of intention to perform a behaviour (Ajzen, 1991; Fishbein & Ajzen, 1975; Conner & Sparks, 2006). Attitudes towards the behaviour are described as the beliefs about the consequences of the behaviour and an evaluation of the

consequences, (Fishbein & Ajzen, 1975) i.e. the evaluation of the likelihood that performing the behaviour will lead to a particular outcome (Conner & Sparks, 2006). Recent examples from the literature have demonstrated that intention to initiate drinking was related to more positive alcohol use expectancies and less motivations to not to drink (Bekman, Anderson, Trim et al., 2011). These positive expectancies towards drinking predicted adolescent drinking independently of parental alcohol use (Cranford, Zucher, Jester, et al., 2010), a known risk factor for initiation of alcohol (Zucher, Donovan, Mosley et al., 2008; Newbery-Birch, Walker, Avery et al., 2009; van der Vorst, Engels, Meeus & Dukovic, 2006). Therefore the links between the focus group research relating to the expectancies of relaxation and lack of inhibition with alcohol use and the TPB (Ajzen, 1991) supported the use of this model within the research framework. However, more research could be conducted to evaluate whether the measures of expectancies that are evaluated within the affective attitude measures of the TPB, (Ajzen, 1991, Elliot & Ainsworth, 2012), are related to the measures of expectancies that are being used in the expectancy literature (e.g. Moss & Albery, 2009; Fulton, Frank & Stewart, 2012) and whether these measures would have been a prudent choice for capturing the expectancy theme within the current research e.g. in a recent study by Fulton, Frank and Stewart, (2012) expectancies from the previous year predicted change in use, even when controlling for use. It may be useful to explore expectancy measures and the theory of planned behaviour.

Within the focus groups, the social norms code had the most subthemes suggesting that peer influence, peer norms, social groupings and group belongingness or identity were also important factors for drinking behaviour. Peer influence was identified from discussion that indicated that the participants tended to drink similar amounts and types of alcohol to their friends, which would seem to support peer drinking as influential on adolescent alcohol use. This may be due to the friendship groups that they choose to belong to. According to Dishion (2013), when forming friendships, children and adolescents seek out relationships with others that have a similar behaviour. This may result in adolescents' own drinking behaviours influencing their friends' drinking and vice versa. If adolescents are selecting friends of similar risk then high-risk adolescents with

similar backgrounds will tend to pick high-risk friends and this peer influence may then increase drinking behaviour (Osgood, Ragan, Wallace, et al., 2013). Hahm, Kolacyk, Jang et al. (2012) found that socialising with substance use peers had an impact on drinking behaviour and increased the risk of early onset binge drinking. There has also been a wealth of literature relating to peer norms and peer influences over alcohol use. Perception of drinking norms amongst peers has been associated with a greater propensity to drink (Perkins & Berkowitz, 1986). These perceptions of drinking norm are discussed more fully in Chapter 3. There is also literature relating to how adolescents seek out relationships with others that have a similar behaviour as them (Dishion, 2013). Osgood, Ragan, Wallace et al., (2013) purport that adolescents' drinking influences their friends drinking. This is through the selection of friends of a similar risk of drinking to themselves. An example would be that high-risk adolescents would tend to pick high-risk friends and this peer influence would then increase their own drinking. It is therefore proposed that social networks are linked to adolescent alcohol use. Hahm, Kolaczyk, Jang and Swenson, (2012) found that those adolescents that were less integrated within their social networks and had greater closeness to peer substance users were more likely to high substance users. Having an alcohol-using peer increased the risk of early onset drinking (Hahm, Kolaczyk, Jang & Swenson, 2012).

The most popular adolescents were more at risk as they had greater social networks increasing their access to alcohol but also a greater pressure to preserve their 'cool' identity. However, the influence of best friend's drinking did decrease over time and was less important in early adulthood (Hahm, et al, 2012). In the current study, friend's drinking behaviour was not a significant predictor of behaviour in the longitudinal analysis, however it was predictor of intention to consume alcohol in the cross sectional analysis.

This group identity within the focus group analysis seemed to be important in terms of the frequency and amount of drinking. There seemed to be a bias within the group that reinforced their own behaviour and separated them from other groups e.g. the 'park drinkers'. This could be explained by social identity theory



(Tajfel & Turner, 1986), where the bias of the in-group towards their own behaviour protects their group status and self esteem. The in-group members in the current study shared similar drinking habits and out-group members were those that did not fit into the in-group. In this example it was the park drinkers and those that were not yet drinkers. These images of drinkers and non-drinkers could also be explained by the prototype imagery suggested by PWM (Gibbons & Gerrard, 1995, 1997). This indicated that the PWM (Gibbons & Gerrard, 1995, 1997) would be an appropriate model for intervention design. The Images theme was related to how cool or uncool the behaviour was considered to be and was related to a willingness to drink to conform to the image. This willingness also supported the inclusion of the PWM (Gibbons & Gerrard, 1995, 1997).

Other links within the literature were found with the descriptive norm measure within the prototype willingness model. This supported using a descriptive norm measure. Also as drinking seemed to be part of identity formation and social behaviours there was requirement for a socially strategic intervention. The Social Norms Approach (Perkins & Berkowitz, 1986), has been widely utilised in the USA and Canada (e.g. Prentice & Miller, 1993; Perkins, Meilman, Leichliter, et al., 1999; Perkins, Haines & Rice, 2007), and was therefore considered a suitable inclusion.

There was also support for the willingness construct as participants seemed to link willingness with an inevitability and maturity and were grouped together under the code of rite of passage. This rite of passage was also linked with parental permissiveness. The parental influence theme was indicative of parental attitudes towards alcohol and their permissiveness and provision of safety. These themes can be linked to other literature in that there is evidence to suggest that parental alcohol use can affect adolescent's alcohol use with greater parental alcohol use being associated with subsequent heavy drinking (Zucher, Donovan, Mosley et al., 2008; Newbery-Birch, Walker, Avery et al., 2009; van der Vorst, Engels, Meeus & Dukovic, 2006). Parental attitudes towards adolescent drinking can also influence onset, with parental rules about alcohol delaying drinking onset

(Blobaum & Anderson, 2006) although parents that have more of an authoritarian parenting style may not be as effective (Foxcroft & Lowe, 1991).

These parental attitudes seemed to support the subjective norm determinant of the TPB (Ajzen, 1991); this is often the weakest predictor of the TPB (Connor & Sparks, 2006). The older group of participants, when talking retrospectively, indicated that parental permissiveness was related to the initiation of alcohol use. Older adolescents also talked about group behaviour, identity and norms and therefore a prevalent theme throughout the adolescent and young adulthood.

Targeting these group identities and normative behaviours and misperceptions of other's behaviour seems to be an important factor in interventions within young people (Lewis & Neighbors, 2006).

Although initiation of risky behaviours tends to be linked to this period of adolescence (Brookes et al, 2011; McVie & Bradshaw, 2006), there is a paucity of adolescent-specific models for the prediction of adolescent risk behaviours. Adult models such as the Theory of Planned Behaviour (Ajzen, 1991), have successfully predicted intention to consume alcohol and alcohol behaviour. However this model fails to consider impulsivity or sensation seeking traits (Stewart, Conrod, Marlatt et al., 2005) and willingness to take risk under the right set of circumstances (Gibbons & Gerrard, 1995, 1997). The Prototype/Willingness model (Gibbons & Gerrard, 1995, 1997) is a model that according to Ravis, Sheeran and Armitage (2006), is designed for the social adolescent life, and when augmented with the TPB (Ajzen, 1991), has demonstrated a greater predictive ability (Ravis, Sheeran & Armitage, 2006). However, to capture the importance of friend's drinking behaviour the Social Norms Approach (Perkins & Berkowitz, 1986) was also incorporated. This approach to targeting alcohol misuse has been successfully and widely used in the USA (Perkins, 2003) and Canada (Perkins, 2007) in college drinkers using social marketing approaches (e.g. posters) and individual feedback for peer alcohol use (see Neighbors, Jensen, Tidwell et al, 2011; Moreira, Smith & Foxcroft, 2010). This has not been widely researched in the UK population and was therefore considered an important inclusion. Although, the descriptive norm measure has been included within the TPB and

successfully increased the predictive ability of the TPB (Rivis & Sheeran, 2003), the Social Norms Theory also considers the misperception of drinking norms amongst typical peers.

The focus groups also revealed the environments in which adolescents were more likely to consume alcohol. These environments were at home with friends, at house parties, or in parks or woods. These environments were then used as a basis to build the scenarios for the intervention to make them relevant to their lives. Even the older participants in the second alcohol focus group study talked about the outside environments and they only differed on proximity to outside spaces e.g. woods, beaches. This creation of drinking spaces was described in an earlier study (Hyde, Treacy, Boland et al., 2001).

### **3.7.1 Limitations of the focus group study on alcohol**

The limitations of the series of focus group studies on alcohol were primarily that the group of drinkers that were perceived by the participants to be engaging in more risky drinking behaviours were not attracted to take part. Therefore it was difficult to ascertain what influenced this particular group of drinkers and whether there were any shared attributes.

### **3.7.2 Future research**

Future qualitative research could endeavour to purposefully select risky drinkers to take part in focus group. This could be from community sources where drinking is considered to be an issue. In retrospect participants from this type of community sample would have added greater value to the current research.

The most challenging aspect of this focus group was the recruitment process. Several methods were tried in order to attract participants at various times. The focus groups times and venues were advertised on notice boards. Opportunistic

sampling was also tried by asking people if they wanted to take part. Refreshments were provided that consisted of sodas and chocolate and crisps.

### **3.8: Chapter Summary**

Chapter 4 has described the focus group studies that were conducted with volunteers relating to alcohol use. The focus groups were conducted with the target intervention recipient age group of 11-15 year olds and also a group of university students to observe similarities and differences between these two at risk groups. The predominant themes in the younger participant group were enjoyment enhancement, social norms, including the influence of other and group identity, images, parental influence and rite of passage. There were similar codes in the older age group such as the expectancy of drinking effects, social groupings, parental influence, but with a further category of drinking behaviour.

Taken as a whole these themes across samples seemed to support a number of theoretical frameworks. The social norms, and groupings would seem to fit the social norms approaches adopted by Perkins and Berkowitz (1986). Also both age groups spoke about positive expectancies of alcohol use, which would seem to support a dual process approach (Smith & DeCoster, 2000). Taking into consideration parental influence and also the images that seemed to be expressed about drinking and a willingness to drink under the right set of circumstances, a dual process approach seemed to be supported. Taking into consideration the previous literature relating to dual processes approach, a combination of the Theory of Planned Behaviour (Ajzen, 1991), and prototype willingness model (Gerrard & Gibbons, 1995, 1997) seemed to fit with the themes of the focus groups. The next chapter discusses how the focus group themes and literature were used to formulate a questionnaire that could be used as an evaluation tool for intervention.

## Chapter Four

### The Development of The Questionnaire

#### 4.1 Chapter Overview:

This chapter draws on the literature relating to previous research in the area of adolescent alcohol use and interventions that have been undertaken to prevent alcohol misuse or promote positive drinking behaviours and also the findings of the focus group discussions (see Chapter 3). The first part of the chapter discusses how the literature and focus group findings have been assimilated into a model framework. Then the following discussion relates to the formation of the questionnaire in relation to the framework and the rationale for the selection of each of the items in relation to the theoretical constructs to which they belong.

#### 4.2 Combining of Theories of Adolescent Alcohol Use

Based on the themes that were identified in the focus group analyses (see Chapter 3) and a review of both the extant empirical literature and of the previous theories relating to adolescent's use of alcohol a conceptual model for adolescents' and students' alcohol use and intervention design was conceived. The theories were chosen based on the success of previous interventions, the themes from the focus groups and in consideration of the developmental factors associated with adolescent maturation. This is a very unique approach in terms of the literature as there has been no previous measure of adolescent alcohol use that has combined cognitive, affective and behavioural measures in this way as a framework for intervention design and evaluation in this population sample.

The previous theories underpinning the new model were based on the theory of planned behaviour (TPB. Ajzen, 1991, 1995), which has been successful in

predicting a number of health related behaviours and has been widely used in intervention design (Connor & Sparks, 2006). The inclusion of the TPB was also supported by the themes of expectancies (affective attitude) and parental influence (subjective norm) for the focus groups study (see Chapter 3).

The model also consisted of the prototype willingness model, which is argued to be more suited to adolescent or student risk behaviour due to the less reasoned approach and responsiveness to situations. The inclusion of the PWM (Gibbons & Gerrard, 1995, 1997) was supported by the evidence that perceptions of drinker prototypes affected alcohol behaviour (Gerrard, Gibbons, Reis-Bergan et al., 2002; see Chapter 2) and the drinking image expressed within the focus group study (see Chapter 4).

The social norms approach (Perkins & Berkowitz, 1986) was also incorporated within the model. This approach was chosen as it had been successfully used for interventions in college students in the USA (Neighbors, Jensen, Tidwell et al., 2011). Also, it was the code that had the greatest number of subthemes within the focus groups including group belongingness, which was also related to theories of social identity (Tajfel & Turner, 1986), [and the concept of using social identity theory as a ‘social cure’ \(Haslam, Jetten & Haslam, 2012\).](#)

The conceptual model of [the combination of the theories consists of the constructs of the theory of planned behaviour \(attitudes, subjective norm, perceived behavioural control intention\), the PWM \(prototype images, willingness\), social norms constructs \(descriptive norms\) and personality factors \(sensation seeking, anxiety sensitivity, impulsivity, hopelessness/introversion\).](#)

### **4.3 Construction of the Questionnaire**

The construction of the questionnaire was undertaken in order to fit into consort guidelines (Shultz, Altman, Moher, 2010) The CONSORT guidelines state that it is important to provide measures of the targeted constructs to evaluate the method of intervention. There were no available questionnaires that included all of the

concepts that were proposed in the combined adolescent alcohol model. To this end a questionnaire was designed.

The questionnaire was constructed drawing on the theories from the combined model. The theories from the conceptual model and the items for each of the components of the theories are discussed separately, but to control for biases the items were interspersed in the final order of presentation.

#### **4.3.1 Instructions**

The front sheet of the questionnaire contained instructions on how to complete the questionnaire, and how long it would take to complete. This was followed by information relating to ethics (BPS, 2009). The participants were made aware that they had the right to withdraw at any time when completing the questionnaire and were given information about how they could do this after the data had been collected. They were also informed that the information that they provided would remain confidential and that their anonymity would be preserved. It also asked for a code for anonymity that was both memorable and individual consisting of personal initials and date and month of birth. This anonymity method was chosen for simplicity and memorability for the participants.

#### **4.3.2 Summary of the sections of the questionnaire**

Section A of the Questionnaire concerns the individual and was a series of 8 questions on demographics, past experience with alcohol (frequency, type and amounts) and attitudes (from the theory of planned behaviour) towards alcohol. Section B consisted of the 23 item SURPS questionnaire on personality (Woicik, Stewart et al, 2009). Section C was made up of a set of 23 items measuring, intention, perceived behavioural control, subjective norm (TPB, Ajzen, 1991) social norms, descriptive norms, parent/carer alcohol behaviour, friend's alcohol behaviour related to the social norms approach (Perkins & Berkowitz, 1986), and the thematic analysis of the alcohol focus groups. Section D was a series of 14

constructs making up the prototype of a drinker and Section E was another series of 14 constructs to make up the prototype of a non-drinker. Section F was a set of 3 constructs relating to behavioural willingness (PWM, Gibbons & Gerrard, 1995, 1997) and finally Section G was a set of alcohol knowledge questions adapted from PUKE, Talk to Frank and NHS websites. Further details of the how the constructs were chosen are given below under the relevant theory heading.

#### **4.3.3 Demographics**

The demographic information questions related to age in years and gender and also included a question relating to whether there were religious beliefs that prevented alcohol use.

#### **4.3.4 Behavioural Measures**

The behavioural measures consisted of a measure of frequency of alcohol use, which is described, in section 6.4.9.

### **4.4 The Theory of Planned Behaviour**

The measures for the TPB were adapted from Ajzen's (2006) template for constructing a TPB questionnaire and research using TPB in risky behaviours, which are outlined in the sections below. The behavioural beliefs questions were constructed from data collected from qualitative research conducted with teenagers and described in Chapter 5.

#### **4.4.1 Behavioural Beliefs**

According to Ajzen (1997, 2006), attitudinal beliefs tend to guide people in their decision to engage or not engage in the behaviour. Ajzen (2006) suggested that pilot work is required to identify behavioural, normative and control beliefs,



which is often done through a questionnaire. In this case the beliefs were elicited from qualitative focus group data with a sample of participants from the target population.

Ajzen (2006) suggests that measuring behavioural beliefs involves measurement of belief strength and an evaluation of the outcome. In previous focus group sessions alcohol was either described in a positive manner as enabling the drinker to feel relaxed and confident in social situations or in a negative way as being stupid and affecting health and behaviour. Two items with corresponding outcome evaluations have been constructed to reflect the positive and negative views of the focus group participants, which should also correlate with the attitude measure. These have been given unipolar scoring from one to 7 with those scoring higher having a more positive view of alcohol. To this end, items 3 and 4 were reverse scored.

*“Drinking alcohol helps me to feel relaxed in social situations”;*

<i>Strongly</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Strongly</i>
<i>Disagree</i>								<i>Agree</i>

*“Feeling relaxed and confident in social situations is important to me”;*

<i>Not at all</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Very</i>
<i>Important</i>								<i>Important</i>

*“Drinking alcohol at my age is “stupid” and affects my physical and mental well-being”;*

<i>Strongly</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Strongly</i>
<i>Disagree</i>								<i>Agree</i>

*“My physical and mental well-being is important to me”;*

<i>Not at all</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Very</i>
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It is acknowledged that items 3 and 4 could have an inverse relationship, with physical and mental wellbeing being considered important but drinking alcohol considered as stupid.

Normally, when using belief measures to predict behaviours six to 12 items are used (Ajzen, 1991), however, as this was a tool to evaluate the effectiveness of an intervention this number of items was considered to be overwhelming. Pilot studies were conducted to evaluate the inclusion of items.

#### **4.4.2 Normative beliefs**

Normative beliefs are usually measured in terms of a belief strength item, followed by a motivation to comply (Conner & Sparks, 2005). With a lack of examples of normative beliefs for alcohol use within the TPB, normative beliefs were taken from the alcohol focus group study (see Chapter 5);

*“Many young people of a similar age to me drinks alcohol”*; measured with a seven point scale from strongly disagree to strongly agree. The motivation to comply was measured with the item: *“With regards to drinking alcohol, I want to do what everyone else is doing”*, followed by a seven point scale from strongly disagree to strongly agree”.

#### **4.4.3 Subjective Norm**

The subjective norm measures are used to capture the perception of important other’s opinions of the person engaging in the behaviour (Ajzen & Fishbein, 1980), in other words asking participants whether people that are close to them would approve or want them to perform the behaviour. This construct has been criticised as being one of the weaker predictors of intention (Conner & Sparks, 2005), and yet peer and parental influence appear to be influential in alcohol

consumption in adolescents (Wood, Read, Mitchell & Brand, 2004). Traditionally, items ask whether important people think that they should or should not (on a seven point scale); perform the behaviour (Conner & Sparks, 2005).

For this questionnaire, the items were reformatted to simplify the semantic content for the target audience;

*“My friends would approve of me drinking”*; followed by a seven point scale from strongly disagree to strongly agree; *“If I was drinking alcohol regularly people who are important to me would”*; followed by a unipolar seven point scale from approve to disapprove (reverse scored).

#### **4.4.4 Descriptive Norm**

As previously stated, the subjective norm element of the TPB is frequently found to be inadequate in predicting intention to drink alcohol (Conner & Sparks, 2005, Collins & Carey, 2007, McMillan & Conner, 2003, Norman & Conner, 2006).

Rivis and Sheeran (2003) conducted a meta-analysis and reported that when descriptive norm measures are used in applications of the TPB, it increases the predictive validity. The descriptive norm measure is also used as part of the prototype willingness model (Gibbons & Gerrard, 1995, 1997) and features within the social norms model (Perkins & Berkowitz, 1996).

The measurement of descriptive norms has varied for example the measures used by Rivis, Sheeran and Armitage (2006) consisted of a question asking how many of the participant’s friends drank alcohol for example, *“Of the 5 or 6 of your closest friends how many of them drink alcohol”* (Rivis, Sheeran & Armitage, 2006). However, to ensure that the scales were similar in format for ease of completion and analysis in the construction of the questionnaire the participants were asked about the behaviour of their closest friends with a unipolar seven point scale from strongly disagree to agree; *“Most of my close friends drink alcohol”*, *“Most of my close friends drink regularly”*, *“Most of my close friends drink similar amounts to me”*. These were based on similar constructs that were used by

Rhodes and Courneya (2003) in their study on exercise behaviour with adolescents.

#### **4.4.5 Control Beliefs**

Control beliefs are what are believed to be the presence of inhibitory or facilitating factors to the behaviour (Gibbons & Gerrard, 2005). Limited examples of control belief items seem to exist in the risk literature and therefore items were based on constructs described by Conner and Sparks (2005), and Norman, Conner and Bell, (2000);

*“I go to my friend’s houses or parties where alcohol is freely available”*; measured by a unipolar scale, 1-7, from never to frequently.

*“Going to places where alcohol is freely available makes drinking”*; measured by a unipolar scale, 1-7, less likely to more likely.

It appeared that these constructs might be related to the behavioural willingness constructs.

#### **4.4.6 Attitudes**

The participants attitudes towards alcohol use were measured on a unipolar seven point scale using the semantic differentials; *Bad-Good*, *Unpleasant-Pleasant* (McMillan & Connor, 2003), *Harmful-Beneficial*, *Unenjoyable-Enjoyable* (Ajzen, 2002), and *Foolish-Wise* (Norman, Conner and Bell, 2000). Therefore, higher scores on these scales would indicate that the participant had a more positive attitude towards alcohol use.

#### **4.4.7 Perceived behavioural control (PBC)**

There has been some debate in the literature regarding PBC. Ajzen (1991), suggested that the construct was quite similar to Bandura's (1977, 1986) self-efficacy, and argued that in some instances the two measures were interchangeable, (Ajzen, 2005). The more recent literature suggests that PBC consists of two components, which are perceived controllability over the situation and perceived self-efficacy in response to the situation (Ajzen, 2006). Support for the two-component approach is demonstrated by Jamieson and Myers (2008), who found that their measures of control were not as effective in predicting behaviour and suggested using self-efficacy type measures in an attempt to improve the predictive reliability.

In the current questionnaire two items of self-efficacy measurement were chosen as controllability of the situation had been addressed under control beliefs. These items were:

*“How confident are you that you could refuse an alcoholic drink at a party?”*, with a unipolar scale ranging from not at all confident to very confident and *“How likely is it that you will drink alcohol in social situations?”* with a 7 point unipolar scale ranging from very unlikely to very likely.

#### **4.4.8 Behavioural Intention (BI)**

The BI measure captures the self-instruction or motivation behind a given behaviour (Gibbons & Gerrard, 2005). This construct is usually measured by several items, usually beginning with, I plan, I intend, I will for example (Ajzen, 1991; Connor & Sparks, 2005). These prefixes were adopted for the questionnaire using a unipolar scale for consistency as follows;

*“I intend to drink alcohol in the next month”*

*Extremely      1          2          3          4          5          6          7      Extremely Likely*

*Unlikely*

*“I will drink alcohol within the next month”*



the measures to the target population more specific individual measures were also used relating to alcohol use in previous week and the previous month. The monthly measure was included to measure the relationship with the intention measure, without being overtly suggestive to the younger participants and because the focus group research (see Chapter 5) had indicated that the frequency of drinking was less frequent than weekly for the majority of participants. The weekly measure was included to capture more frequent drinking and because it has been used previously (Spijkerman, van Den Eijnden et al. 2007).

A measure was also used to assess heavy drinking on a single occasion, sometimes labelled binge drinking. Consequently, for frequency and amount measures participants were asked to indicate how much that they would drink on a typical drinking occasion. The participants were also asked to indicate how many times they had drunk more than 5 glasses of alcohol on a single occasion in the last six months. Glasses were used instead of units to make it age appropriate and avoid what might be difficult mathematical calculations. This is consistent with other adolescent alcohol measures e.g. The Edinburgh Youth Crime and Justice Study (McVie & Bradshaw, 2005).

#### **4.5 Prototype/Willingness Model**

According to Ravis, Sheeran and Armitage (2006), the prototype willingness model is designed for the social nature of the adolescent life. The measures of the prototype willingness model relate to the participant's evaluation of the typical person who engages or does not engage in that behaviour labelled as their risk images.

##### **4.5.1 Risk-images**

Risk images are the prototypes of the given behaviour. These can be risk and non-risk images or in other words actor versus abstainer images (Gibbons & Gerrard, 1997). To identify prototype actor images, participants were asked to consider the type of person of their age who engages and who does not engage in the behaviour and then rate a list of adjectives (*smart, confused, popular, immature, cool, self-confident, independent, careless, unattractive, dull, considerate, self-centred*) on a seven point unipolar scale from “*not at all*” to “*extremely*”, taken from Gibbons and Eggleston (1995).

#### **4.5.2 Prototype favourability**

The prototype favourability measure relates to the contemplation of the particular prototype. Greater favourability or the greater amount of time contemplating the typical drinker or non-drinker has previously demonstrated a relationship to an increased willingness to drink alcohol (Gibbons, Gerrard & McCoy, 1995).

To measure favourability participants were asked to rate how often they had thought about this type of person on a unipolar scale from never to very often. This measure was included for both drinker and non-drinker images. Previous findings have indicated that drinkers report more contemplation of drinker images than non-drinker images (Gerrard, Gibbons, Reis-Bergan et al, 2002). Gibbons, Gerrard and McCoy (1995) and found that prototype favourability and perceived similarity were both significant predictors of willingness.

#### **4.5.3 Perceived Prototype Similarity**

Prototype evaluation is like or dislike of the typical characteristics of a person who engages in the risk behaviour (risky behaviour actor prototype). Prototype similarity is the evaluation of how similar or dissimilar this image is to oneself. It is assumed that the more positive the evaluation and closer the perceived similarity then the greater the willingness to engage in the behaviour (Rivis, Sheeran and Armitage, 2006).



The measurement of prototype similarity included in the current questionnaire: *“How similar are you to the type of person who drinks alcohol?”* was adapted from Ravis, Sheeran, and Armitage (2006), with a seven point unipolar scale from not at all similar to very similar. Comparing actor with abstainer images Ravis, Sheeran and Armitage (2006) found that the actor prototype was evaluated more positively and was perceived as being more similar to the self than the non-drinker image. It was hypothesised that if prototypes potentially have a facilitating effect as well as an inhibitory effect, then measuring similarity would allow the evaluation of the effects of targeting prototype imagery.

The drinker image prototype evaluation and favourability and similarity scores were in Section E of the questionnaire and the non-drinker measures were in Section F.

#### **4.5.4 Behavioural Willingness**

The behavioural willingness construct is based upon the notion that many teenagers will find themselves in particular situations that are conducive to risk taking. The willingness construct of the PWM captures the openness to engage in a risk behaviour should the situation present itself (Gerrard, Gibbons, Reis-Bergan et al, 2002) and in this sense is antithetical to intention. It is suggested that these occasions are not intended and that the behaviour involves little pre-contemplation (Gibbons, Gerrard, Ouellette & Burzette, 1998). It is suggested that the risk behaviour is purely a reaction to the circumstances that are conducive to risk taking (Gerrard, Gibbons, Reis-Bergan et al, 2002). The construct measures were replicated from Gerrard, Gibbons, Reis-Bergan et al, 2002, page 603); The question asked them to imagine that they were at a party with some friends and one of them offers them a drink and then to rate how willing they would be to “take it and try it”, “tell them no thanks” or to “leave the situation”. A seven point Likert scale followed the statements that ranged from “not at all willing” to “extremely willing”, with reverse scoring for the latter two items.

#### **4.6 Social Norms**

Social norms seem to be measured in terms of frequency and quantity of alcohol use by typical peers (Perkins, Meilman, Leichliter et al., 1999, Perkins, 2007; Moreira, Smith & Foxcroft, 2010). The social norms theory was represented by frequency and volume measures relating to typical peers, parents and close friends and also included the descriptive norm measures as previously described. It has previously been argued that the construct seemed to differ slightly from the descriptive norm measure as it is about peers rather than close friends and can be based upon what they think to be right as well as what is done by others (Moreira, Smith & Foxcroft, 2010). However, the focus groups seemed to suggest that the behaviour of close friends was similar to the participant's own behaviour.

#### **4.7 Personality Characteristics and The Substance Risk Profile Scale (Section B)**

As previously discussed, there is some evidence that personality factors predict alcohol use amongst adolescents. The substance risk profile scale (SURPS) was developed by Woicik, Conrod, Pihl, Stewart and Dongier (1999), to assess four susceptible profiles to alcohol use and was used with permission from the author. The SURPS measures four personality dimensions; hopelessness/introversion, impulsivity, anxiety sensitivity and sensation seeking on unipolar 4 point scales from strongly disagree to strongly agree. The shorter version was used in the present research.

Hopelessness/introversion was measured by 6 items for example *"I am content"*, *"I feel proud of my accomplishments"*; Impulsivity was measured by six interspersed items e.g. *"I don't often think things through before I speak"*, *"The most interesting and exciting things are usually illegal or immoral"*; Anxiety sensitivity was measured by six interspersed items e.g. *"It frightens me when I feel my heart beat change"*, *"I get scared when I experience unusual body sensations"*; Sensation seeking was measured by 5 items e.g. *"I enjoy new and exciting experiences even if they are unconventional"*, *"I like doing things that*

*frighten me a little*". The tool was assessed for reliability and validity in a series of studies (Woicik, Stewart, Pihl & Conrod, 2009) and has been successful in identifying and matching particular clients to targeted intervention strategies (Castellanos & Conrod, 2006).

#### **4.8 General Knowledge Questions and Evaluation**

The general knowledge questions were included to assess the level of knowledge and myth surrounding alcohol use. The general knowledge questions were 20 questions inspired by using information and quizzes from the PUKE website, Talk to Frank website and NHS websites.

To evaluate the reliability of the questionnaire and to evaluate the choice of language a pilot study was conducted with a group of young people from the appropriate age bracket. For this purpose the questionnaire also included some evaluative questions concerning length of questionnaire and the difficulty in language within the questionnaire.

#### **4.9 Chapter Summary**

This chapter has given the rationale for using a combined theoretical eclectic model for intervention design and evaluation pertaining to adolescent alcohol use. The proposed model consisted of a combination of the theory of planned behaviour (Ajzen, 1991), the prototype willingness model, (Gerrard & Gibbons, 1995, 1997), the social norms theory (Perkins & Berkowitz, 1996), and personality characteristics associated with adolescent alcohol use (Comeau, Stewart et al, 2006). This chapter has also outlined how the focus group research was used to assist in the design of the questionnaire and the rationale for using the various scales for each of the theoretical models. The next chapter is concerned with the preliminary testing of the questionnaire for reliability across adolescent age ranges.

## **Chapter Five**

### **Pilot Studies on the Questionnaire**

#### **5.1 Chapter Overview**

The previous chapter outlined the construction of the questionnaire based on the combination of theories. New questionnaires need to be tested for the reliability of the subscales and also to check that the questionnaire is appropriate for the target participant group (Jack & Clark, 1998; Bowling, 1997). This chapter describes the results of an initial pilot study of the questionnaire, the subsequent amendments and a retest pilot study. The chapter is consequently split into several parts.

The first part of the chapter describes the data from the first pilot study; the participants, their alcohol behaviour and their evaluations of the questionnaire. The chapter then describes the reliability of the measures and the relationships between the variables according to the respective theories to which they belong. There follows a discussion of the findings and amendments to the scales and ways of measuring constructs within the questionnaire.

The second part of the chapter is a discussion of the results of a further pilot study to evaluate the amendments to the questionnaire. This part of the chapter follows a similar format with a discussion of the participants and their drinking behaviour, followed by a discussion of the reliability and relationships between the subscales according to each theory. The final part of the chapter is concerned with the changes made to the questionnaire.

## **5.2 Pilot Study 1**

This part of the chapter is concerned with evaluating the questionnaire with a group of age appropriate volunteers to assess the suitability, clarity and the reliability of the subscales.

The aims of this pilot study were to evaluate the internal consistency of the subscales, to observe relationships within and between variables from the combined model theories and alcohol behaviour.

### **5.2.1 Hypotheses**

H<sub>1</sub>

It was hypothesised that the subscales would demonstrate good internal consistency.

H<sub>2</sub>

It was also hypothesised that there would be relationships between the constructs of the theory of planned behaviour and intention to drink alcohol; drinker images and willingness to drink; friends drinking behaviour and participant drinking behaviour.

### **5.2.2 Participants**

The participants in the initial pilot study were 19 (11 males and 8 female) volunteers aged between 11-15 with a mean age of 13.44 (SD 1.29), recruited from a local school and youth group using a snowball technique. Those that were willing to take part also nominated and took packs for other friends that they thought would take part.

### **5.2.3 Design**

The design was a cross sectional survey design pilots study, with the questionnaire (see appendix c) administered at a single time point.

### **5.2.4 Materials**

The Questionnaire consisted of 7 sections. The front page consisted of a paragraph that outlined the voluntary nature of participation, the right to withdraw, and information about how to contact the researcher. It also reminded the participants that their responses were anonymous and asked for an anonymity code consisting of their initials and month and date of birth. Section A consisted of a series of questions relating to the behaviour of the individual participants. Section B, consisted of the SURPS questionnaire (Woicik, Stewart, Pihl & Conrod, 2009) relating to personality characteristics, Section C, the theory of planned behaviour measures (Ajzen, 1991); Section D consisted of the prototype willingness model drinker images, Section E, the prototype willingness model non-drinker images, Section F, behavioural willingness; and Section G consisted of 20 questions designed to capture knowledge of alcohol.

### **5.2.5 Procedure**

Following ethical approval from the University's Research Centre for Applied Psychology (RCAP) ethical review board, a local school and local youth movement were contacted and agreed to take part in the study. Consent was sought and obtained from the local District Commissioner for scouts, and the Head teacher of the local school.

School volunteers were recruited via their school link teacher. The principal investigator visited the Scout Troops with the permission of the Scout Leader and those that volunteered were given a pack addressed to their parents/carers. In

order for the volunteer participants to take part in the study, consent was required from their parent or carer. Therefore the packs contained a parent/carer information and consent form, participant information form and the questionnaire. Also included was a credit card sized information card with details of Freephone numbers for ChildLine and Talk to Frank.

Completed packs were returned to the school or to the Scout Leader and were collected by the principal researcher. Data was entered by hand into SPSS (V19) by the principal investigator.

### **5.3 Results**

The data was analysed using SPSS (19). Firstly descriptive analyses were performed to evaluate the behaviour and knowledge of the participants, and then a series of reliability measures were calculated per theory to assess the subscales of the questionnaire.

#### **5.3.1 Behaviour**

Behaviour was measured by the frequency and amount of alcohol consumed. Participants rated on a scale how frequently they consumed alcohol. The scale was a unipolar likert scale ranging from 0 (*"I don't drink"*), to 7 (*"I drink everyday"*).

##### **5.3.1.1 Frequency of Drinking**

12 participants (63.2%) were non-drinkers, 4 participants (21.1%) indicated that they only drank infrequently, 1 participant (5.3%) drank less than once a month and 2 (10.5%) admitted to drinking 2-3 times a month. None of the participants indicated that religion prevented them from drinking alcohol.

#### **5.3.1.2 Amount in the previous month**

In the previous month the maximum amount of alcoholic drinks that had been consumed were 13 drinks with a mean of 5.5, (SD = 1.653).

#### **5.3.1.3 Amount in previous week**

The maximum amount that had been consumed in the previous week was 7 alcoholic drinks (mean number of drinks 2.75, SD 2.38).

### **5.4 Type of Alcohol**

Out of the 7 participants that indicated drinking alcohol, only 5 stated what they usually drank on a typical drinking occasion. The drink of choice varied; 2 stated lager, 1 beer, 1 red wine and 1 drank vodka. The participant that admitted to drinking vodka was also the participant who admitted to consuming the most amount of alcohol.

### **5.5 Knowledge about Alcohol**

The knowledge quiz was scored by correct answers achieving a score of 1 and all incorrect answers were given zero. This meant that the maximum score that could be achieved with all correct answers would have been 20. None of the participants achieved the maximum score, the minimum score was 7 and the maximum score was 17/20 with a mean score of 11.47 (SD 2.85).

### **5.6 Evaluation by Participants**

The participants were asked to comment on how long the questionnaire took to complete, the clarity of the questions and to give any general feedback.



### **5.6.1 Time to complete**

Of the 19 participants that took part in the study, 11 participants stated that it took less than 20 minutes to complete the questionnaire, 4 stated that it took 20 minutes and 4 indicated that it took longer than 20 minutes. Therefore for the majority of participants the questionnaire only took 20 minutes or less and only 1 participant stated that they felt that the questionnaire was too long.

### **5.6.2 Clarity**

In response to being asked how easy the questionnaire was to understand, 16 of the participants indicated that the questionnaire was easy to understand, 2 said that it was mostly easy to understand and only 1 indicated that they found it difficult to understand. 11 participants found the language easy to understand, 2 stated that it was mostly easy and 2 indicated that they found the language difficult. Overall, 17 said that the questionnaire was easy to complete and 2 said that it was difficult; all 19 participants indicated that the style of the questionnaire was “*ok*” in a forced choice question.

## **5.7 Reliability**

The reliability of the constructs for each of the theoretical components of the questionnaire was calculated using Cronbach’s alphas. A Cronbach’s Alpha of 0.9 and above shows excellent reliability; 0.7-0.9 shows high reliability; 0.5-0.7 shows moderate reliability and 0.5 and below shows low reliability (Hinton, McMurray & Brownlow, 2014). These results have been organised according to each of the theoretical components of the questionnaire; the TPB, PWM, Social Norms Theory and Personality Constructs.

### 5.7.1 Theory of Planned Behaviour

The results of the reliability analysis for the TPB are shown in table 5.1.

Table 5.1: Reliability analyses for the TPB components.

Construct	$\alpha$
Behavioural Beliefs	-.36
Normative Beliefs	.64
Control Beliefs	-.63
Instrumental Attitude	.94
Affective Attitude	.98
Subjective Norm	.74
Perceived Behavioural Control	.73
Intention	.99

The results of the analysis indicate that the higher ordinate belief constructs; Behavioural beliefs, and control beliefs showed poor levels of reliability. The normative beliefs showed a moderate reliability the score for intention was excellent, but this score suggested that the questions were too similar and required adjustment. Instrumental and affective attitude also showed excellent internal consistency. High levels of internal consistency were found for the subjective norm and perceived behavioural control (Hinton, McMurray & Brownlow, 2014).

### 5.7.2 Prototype/willingness model

The results of the reliability analysis are shown in table 5.2. below.

Table 5.2: Reliability analyses for the PWM components.

Construct	$\alpha$
Drinker Images	.86
Non-Drinker Images	.85
Behavioural Willingness	.49

The drinker image prototype measures showed high levels internal consistency as did the non-drinker prototype image measures, however the behavioural willingness scale showed low levels of consistency (Hinton, McMurray & Brownlow, 2014).

### 5.7.3 The Social Norms Theory

The scale associated with the social norms theory is the descriptive norm measure. The result of the reliability analysis for this construct is shown in table 7.3.

Table 5.3: Reliability analysis of the descriptive norm scale

Construct	$\alpha$
Descriptive Norms	.73

The descriptive norm scale showed a high level of internal consistency (Hinton, McMurray & Brownlow, 2014).

### 5.7.4 Personality

Reliability analysis was also conducted on the SURPS questionnaire (Woicik, Stewart, Pihl & Conrod, 2009). The results are shown in Table 6.4.

Table 5.4: Internal consistency of personality subscales

<b>Personality Construct</b>	<b><math>\alpha</math></b>
Sensation Seeking	.63
Impulsivity	.50
Hopelessness	.84
Anxiety Sensitivity	.75

In this participant group the results indicated that the hopelessness and anxiety sensitivity showed a high internal consistency whereas the impulsivity showed a low internal consistency and sensation seeking showed a moderate level of internal consistency.

## **5.8 Relationships Between Variables**

The relationships between the variables for each of the respective theories were evaluated using Pearson's correlation coefficients. As the TPB (Ajzen, 1991) has been extensively studied a one-tailed Pearson's coefficient was used. A two-tailed approach was used for the PWM, (Gibbons & Gerrard, 1995), Personality Measures (Woicik, Stewart, Pihl & Conrod, 2009) and the social norms constructs (Perkins & Berkowitz, 1986).

### **5.8.1. Theory of Planned Behaviour**

Due to the low reliability of the higher ordinate constructs the variables included in the analysis were for attitudes, subjective norm, perceived behavioural control and intention for the theory of planned behaviour. These results are depicted in table 5.5.

Table 5.5: Relationships between the theory of planned behaviour constructs (Ajzen, 1991)

	AffAtt	InstAtt	S/Norm	Control	Intention
AffAtt	1				
InstAtt	.880**	1			
S/Norm	-.259	-.184	1		
Control	.447*	.458*	-.227	1	
Intention	.928**	.877**	-.260	.576**	1

\*\* Significant at the 0.01 level (1-tailed)

\*Significant at the 0.05 level (1-tailed)

Key AffAtt = affective attitudes, InstAtt = instrumental attitude.

The results indicated that there was a significant positive relationship between affective and instrumental attitude and perceived control over drinking indicating that more positive alcohol attitudes were related to higher feelings of control. There was also a significant positive relationship between affective and instrumental attitudes and intention to drink alcohol, which indicated positive attitudes towards alcohol were related to positive intentions to drink alcohol. An increased perceived control over alcohol consumption was also significantly related to an increased intention to drink alcohol. The relationships between the subjective norm construct and affective and instrumental attitudes, control and intention were in a negative direction but were not significant.

### 5.8.2 The prototype/willingness Model

The relationships between the drinker and non-drinker prototypes and the familiarity and similarity scale were analysed using a Pearson correlation.

### 5.8.2.1 Drinker Images

The results for the drinker prototype image and the participant's perception of their familiarity with the image and similarity to the image are depicted in the Table 5.6.

Table 5.6: Relationships between drinker images and familiarity and similarity measures

	Drinker Image	Familiarity	Similarity
Drinker Image	1		
Familiarity	.347	1	
Similarity	.466	.082	1

The results of the Pearson correlation analysis indicated that the familiarity and similarity measures were not significantly related to the prototype images of a drinker. This would suggest that the participants in this study had not spent a significant amount of time contemplating the images of drinkers and did not consider themselves similar to the drinking image.

### 5.8.2.2 Non-drinker Images

The relationships between drinker and non-drinker images and familiarity and similarity measures were examined using a two-tailed Pearson's correlation coefficient.

Table 5.7: Relationships between non-drinker images and familiarity and similarity measures

	N/Drinker Image	Familiarity	Similarity
N/Drinker Image	1		
Familiarity	.054	1	
Similarity	.298	-.255	1

The results of the Pearson correlation analysis indicated that the familiarity and similarity measures were not significantly related to participants' prototype images of the non-drinker. These results would indicate that the participants had not spent significant amounts of time in contemplation of the non-drinker images and did not consider themselves to be similar to that image. The familiarity and similarity measures in this example showed a negative relationship even though this relationship was not significant.

### **5.8.2.3 Relationships between drinker and non-drinker images and willingness to drink alcohol**

The relationships between the drinker and non-drinker images and willingness to consume alcohol should the opportunity present itself was analysed using Pearson's correlation coefficients. The results of this analysis are presented in table 5.8.

Table 5.8: Relationships between drinker and non-drinker images and willingness

	Drinker Image	N/Drinker Image	Willingness
Drinker Image	1		
N/Drinker Image	-.328	1	
Willingness	.612*	-.466	1
* Significant at the 0.05 level (2-tailed)			

The results of the analysis indicated that drinker prototype images were significantly positively related to willingness to engage in drinking behaviour. This suggests that positive drinker images were related to a greater willingness to consume alcohol. Non-drinker images and willingness to drink were not significantly related and the relationship between the two constructs was in a negative direction.

### 5.8.3 Social Norms Theory

The social norms theory part of the model is made up of the descriptive norm scale and the behaviour of family, friends and their perception of the typical teenager. These are represented by the typical teen frequency of drinking, the amount the typical teen drinks, how often their friends and parents drink. The relationships between these measures and the descriptive norm scale are shown in table 5.9.

Table 5.9: Relationships between measures that represent the social norms theory.

	TypFreq	TypNo.	Peer Freq	ParentFreq	Peer No	Des Norm
TypFreq	1					
TypNo.	.685**	1				
Peer Freq	.476*	.402	1			
ParentFreq	-.082	.077	.072	1		
Peer No	.378	.460	.745**	.395	1	
Des Norm	.113	.095	.617**	.258	.457	1

\*significant at the 0.05 level (2-tailed)

\*\*significant at the 0.01 level (2-tailed)

Key: TypFreq= Typical frequency of drinking, TypNo = Typical number of units consumed, Peerfreq = peer frequency of drinking, PeerNo = peer number of units consumed, Des Norm = descriptive norm.

The typical person of a similar age's drinking frequency and amount were significantly correlated, and with peer frequency of drinking. Peer frequency was also significantly related to peer amount and the descriptive norm measure. There were no significant relationships between the parent frequency of drinking and peers and friends, or descriptive norm measures.



### 5.8.3.1 Relationships between peer, parent, friend's drinking behaviour and participants' drinking.

These results were then compared to the participant's frequency of drinking which revealed that the participants' frequency of drinking was significantly related to peer's frequency of drinking (.766,  $p < 0.01$ ), and amount (.784,  $p < 0.01$ ), Parents' drinking behaviour (.488,  $p < 0.05$ ), descriptive norm (.768,  $p < 0.01$ ). These results suggested that social normative influences were related to drinking behaviour in this participant group.

### 5.8.4 Personality characteristics

Potential relationships between the personality characteristics were analysed using a Pearson correlation. The results of the analysis are depicted in table 5.10

#### 5.8.4.1 Relationships between the personality characteristics

Table 5.10: Relationships between personality characteristics

	Sensation Seeking	Anxiety Sensitivity	Hopelessness	Impulsivity
Sensation Seeking	1			
Anxiety Sensitivity	-.016	1		
Hopelessness	-.239	.166	1	
Impulsivity	.502*	-.145	.325	1
* Correlation is significant at the 0.05 level (2-tailed)				

The results of the analysis indicated that the only characteristics that were significantly related were sensation seeking and impulsivity. As sensation seeking and impulsivity have previously been linked with higher incidences of drinking (Comeau, Stewart & Loba, 2001; Stautz & Copper, 2013), further analyses were conducted to assess the relationships between the personality characteristics and frequency of drinking and willingness to consume alcohol. The results of these analyses are depicted in table 5.11.

#### 5.8.4.2 Relationships between personality characteristics and frequency and willingness to consume alcohol

Table 5.11: Relationships between personality characteristics and frequency of drinking and willingness to drink.

	Frequency	Sensation Seeking	Anxiety Sensitivity	Hopelessness	Impulsivity	Willingness
Frequency	1					
Sensation Seeking	.109	1				
Anxiety Sensitivity	.117	-.016	1			
Hopelessness	.384	-.239	.166	1		
Impulsivity	.545*	.502*	-.145	.325	1	
Willingness	.594**	-.121	.255	.508*	.325	1

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

The results indicated that frequency of drinking was significantly positively related to the impulsivity characteristic and a willingness to consume alcohol. This suggests that those that scored higher in impulsivity were also more likely to be willing to consume alcohol and to consume alcohol more frequently. The hopelessness characteristic also showed a significant positive correlation with the willingness concept, which suggests that those that scored more highly in hopelessness were also more willing to drink alcohol should the opportunity arise.

#### 5.8.5 Evaluation of the pilot study data

The pilot study of the questionnaire was conducted to test the reliability of the scales for the theories underpinning the conceptual model for adolescent alcohol behaviour and examine the relationships of the concepts to evaluate the model.

The results indicated that most of the participants who took part in the study were non-drinkers. Among the participants that did drink alcohol the choice of alcohol was varied but featured mainly wines and beers. This may be because these are the types of drinks that are more readily available in the home or at parties.

The responses to the knowledge quiz indicated that the participants might benefit from more education about alcohol and the effects of alcohol as part of an intervention.

The results of the reliability analysis highlighted which of the measures were accurate in measuring the constructs of the individual theories. The internal reliability analysis for the higher ordinate constructs of normative beliefs, control beliefs, and behavioural beliefs achieved poor scores or scores that could be considered unreliable. According to Ajzen (2006) measuring beliefs can enable insight into the underlying cognition behind a set of behaviours. However, the measures of beliefs in this study demonstrated poor internal reliability. Re-examination of the literature revealed that many studies had not included measures of beliefs (e.g. Marcoux & Shope, 1997; Elliot & Ainsworth, 2012). The theoretical model suggests that behavioural beliefs and outcome evaluations lead to attitude (e.g. French, Sutton, Hennings et al, 2005) and therefore the attitude construct is representative of the beliefs surrounding the behaviour.

The items for each of the scales were written using Ajzen's (2002) template and consequently the questions for the weaker constructs were re-examined and compared to the literature. The intention subscale revealed a higher than expected internal reliability ( $\alpha = .99$ ). This suggested that the items were too similar to each other, and were consequently re-worded. The new scale was based on items described by Elliot and Ainsworth (2012) that demonstrated good reliability ( $\alpha = .93$ ) with a young participant group: *"How much do you want to engage in drinking within the next week"*, *"I intend to drink alcohol within the next week"*, and *"Do you plan to drink alcohol within the next week"*.

Although the perceived control reliability was adequate the scale was refined to try and improve the reliability, the new items were: "Whether I drink alcohol

within the next week is completely under my control”, “Things going on around me that are not in my control will influence my decision to drink or not within the next week”, “How confident are you that you could drink within the next week”, and “It is completely up to me whether I drink within the next week”.

The subjective norm measure was also not very reliable with this participant group. The items within the scale were re-evaluated and the new items were written in a clearer manner: *“If I were drinking alcohol every week or more often, most people who are important to me would approve/disapprove”, “People who are important to me would want me to drink alcohol within the next week”, “I feel pressure from people that are important to me to drink alcohol”*.

The prototype willingness model scales were as described by Gibbons and Gerrard (1995, 1997), and although the behavioural willingness scale was not very reliable, this could have been due to the number of participants and their differences in ages and alcohol experience and use. The relationships between the familiarity and prototype images and similarity and prototype images were also not significant.

For the descriptive norm scale of the social norms theory the item; “Most of my friends drink similar amounts to me”, was deleted on the basis of the Cronbach’s alpha. The item was reworded to shift the emphasis onto the individual, “I drink similar amounts to my friends”.

The internal consistency for the SURPS measures was adequate for hopelessness and anxiety sensitivity and inadequate for sensation seeking and impulsivity. This could have been due to the semantics and understanding for the particular age group. It could also have been due to the low number of participants in the study. Woicik, Stewart, Pihl and Conrod (2009), achieved high levels of internal consistency within their own studies but subsequent studies have been less successful. This may be due to the participant pool, language or the ability to ask questions about what the items are referring to. In the present study, the questionnaires were taken away to complete and so there was less likelihood of

participant questions. Further studies with different age groups, numbers may exude different results.

### 5.9 Re-worked conceptual model framework

Based on these results the conceptual model was re-evaluated and the higher ordinate constructs were removed to simplify the model and streamline the questionnaire. The revised potential adolescent risk model is depicted in the figure 5.1.

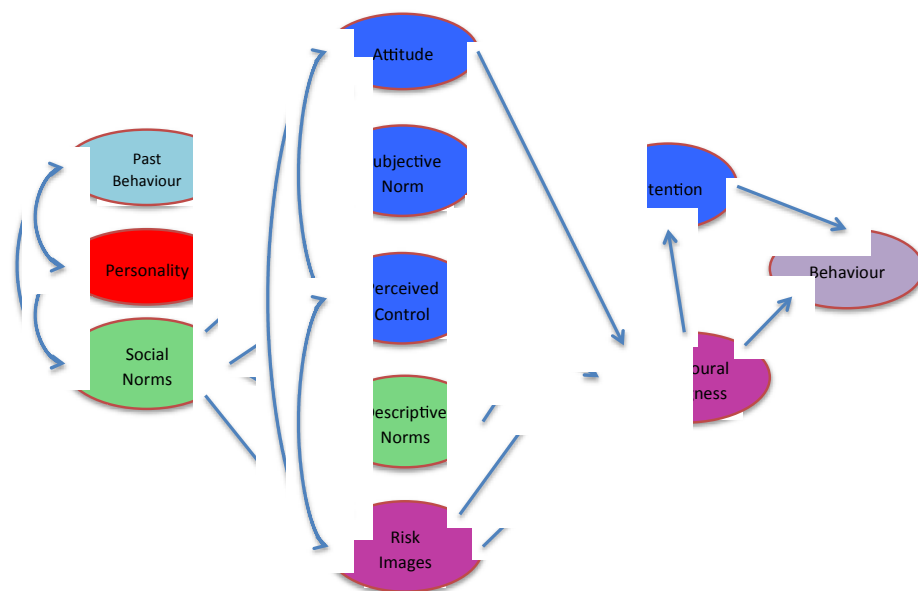


Figure 5.1: Revised potential adolescent risk behaviour model

### **5.10 Pilot Study based on the Revised Model and Scale Items**

A further pilot study was conducted with an online version of the questionnaire with an older participant group. Ideally the participant group would have been from the same age group as the first set of participants to test the reliability. However, if the intervention were to be successful as a PHSE tool, then the questionnaire would also need to be tested with an older age group. The older participant group age was consistent with the age group of USA college drinkers (Perkins & Berkowitz, 1986, Perkins, 2003; Perkins, 2007), and first year university students analogous with drinking (Gill, 2002) and was used to test the reliability of the new scales. This would extend the usability into young adulthood.

#### **5.10.1 Participants**

The participants were 31 volunteers aged between 16 and 19 with a mean age of 17.48 (SD.890), recruited using a snowball technique. There were 24 females and 7 males in total. Two of the participants indicated that they did not drink for religious reasons. The questionnaire took on average 15.55 (SD4.48) minutes to complete.

#### **5.10.2 Design**

The design was a pilot survey using an online version of the amended questionnaire as previously described.

#### **5.10.3 Materials**

The materials consisted of a Qualtrics online version of the questionnaire as previously described. The information page was re-written to accommodate the online nature of the survey and included information regarding anonymity,

confidentiality and the right to withdraw. The participants were advised that they could leave the study by closing down the programme or after completion by contacting the investigator.

#### **5.10.4 Procedure**

The link to the questionnaire was emailed to volunteers who then passed the link to their friends. Data was downloaded into SPSS (19) for analysis.

#### **5.10.5 Results**

The results section is split into descriptive analysis of drinking behaviour and of the knowledge quiz, followed by the reliability of the subscales and relationships between the variables.

##### **5.10.5.1 Drinking Behaviour**

Drinking behaviour was measured in terms of frequency of drinking, the amount in the previous month and previous week and the most consumed on a single occasion.

##### **5.10.5.2 Frequency of drinking**

The participants drinking behaviour in terms of how often they consumed alcohol is represented in the Table 5.12

Table 5.12: Participant responses for frequency of drinking

<b>Frequency</b>	<b>No. of Participants</b>
<b>Did not drink</b>	4
<b>Seldom drank</b>	5

<b>Drank less than once a month</b>	6
<b>Drank 2-3 times a month</b>	11
<b>Drank once a week</b>	1
<b>Drank 2-4 times a week</b>	1

As expected, more of the participants in this pilot study admitted to drinking, and therefore it was possible to compare the most frequently drunk types of alcohol. The mean number of drinks is depicted in table 5.13 below. The numbers of drinks are represented as glasses or bottle/cans or pints of alcoholic beverage.

Table 5.13 representing the mean number of drinks consumed in the previous month.

<b>N = 30 Amount per Month</b>	<b>Mean</b>	<b>Standard Deviation</b>
Glasses of Wine	2.47	3.96
Pints/Cans/Bottles Beer	0.63	2.07
Pints/Cans/Bottles Cider	0.5	1.33
Pints/Cans/Bottles Lager	0.13	0.73
Shots	3.63	7.25
Bottles/glasses Alcopops	0.9	2.54
Pint/Can/Bottle Strong Beer	0.23	0.89
Pint/Can/Bottle Strong Cider	0.03	0.18

From the table it would seem that more shots were consumed in the previous month than other types of alcohol. However, to determine the most frequently consumed alcohol, frequency analyses were performed and the results are shown in table 5.14.



Table 5.14: Represents the frequency of different types of alcohol consumed.

No. of Drinks	Wine	Beer	Cider	Lager	Shots	Alcopop	Strong Beer	Strong Cider
0	13	24	24	29	17	25	28	29
1	5	3	3		2	1		1
2	3	1	1		1	1	1	
3	2	1	1		2		1	
4	2			1				
5					2	1		
6	2		1					
7	1							
8					2			
9						1		
10					1	1		
11		1						
12								
13					1			
14								
15	2				1			
35					1			

The results of the frequency analysis indicate that approximately half of the participants had consumed alcohol in the previous month. The most consumed alcoholic drink in the previous month was wine in this participant group. The second most popular drink was measures of alcohol, either in shots or with mixers, and the third was beer. The least consumed drinks were lager and strong cider. These frequencies were also compared according to the previous week.

Table 5.15 Represents the mean number of drinks consumed in the previous week.

<b>N=30 Drinks per week</b>	<b>Mean</b>	<b>Standard Deviation</b>
Wine	0.8	1.56
Beer	0.3	1.29
Cider	0.27	0.78
Lager	0	0
Shots	1.57	5.01
Alcopop	0.27	1.05
Strong Beer	0.13	0.73
Strong Cider	0	0

Table 5.16: A table to represent the types of alcohol consumed

<b>No. of Drinks</b>	<b>Wine</b>	<b>Beer</b>	<b>Cider</b>	<b>Lager</b>	<b>Shot</b>	<b>Alcopop</b>	<b>Strong Beer</b>	<b>Strong Cider</b>
0	21	27	26	30	23	28	29	30
1	4	2	2					
2					2	1		
3	2		2		1			
4	2				2	1	1	
5					1			
6	1							
7		1						
27					1			

In the previous week, wine had been the mostly consumed alcoholic beverage, followed by shots. No one admitted to drinking strong lager or strong cider.

### 5.10.5.3 Heavy Episodic Drinking

The responses were in free text and varied as to the quality of reporting. Approximate units were calculated according to the information written and with the use of the Drinkaware calculator. The range of drinking behaviour was between no alcoholic drinks to 23 units on a single occasion with an approximate mean number of units of 8.26 (SD = 6.511).

#### **5.10.5.4 Knowledge**

Each correct answer was scored with a 1; the incorrect answers were given a zero. The scores were summed, which gave a figure out of 10. Participants scored between 4 and 8 out of 10 with a mean score on the knowledge questions of 6.16 (SD = 1.128).

#### **5.10.5.5 Reliability Analysis**

Each of the new subscales was analysed for reliability using Cronbach Alpha. These are represented according to each of the theories that form the conceptual adolescent risk model and are presented according to theory.

##### **5.10.5.5.1 Theory of planned behaviour**

The reliability of the subscales was tested using Cronbach Alphas.

Table 5.17: Reliability analysis for the theory of planned behaviour subscales.

<b>Construct</b>	<b><math>\alpha</math></b>
<b>Attitude</b>	.87
<b>Subjective Norm</b>	.75
<b>Perceived Behavioural Control*</b>	.55
<b>Intention</b>	.89

**\*With item 13 deleted from the scale**

The reliability for the measures of the theory of planned behaviour were all considered to be high except for the perceived behavioural control measure, which was considered to show moderate reliability (Hinton, McMurray & Brownlow, 2014). The Cronbach's Alpha score was lower than in the previous study and therefore the previous subscale seems to be a more reliable measure of control.

#### 5.10.5.5.2 Prototype/Willingness Model

The measures for the prototype willingness model, drinker prototype images, non-drinker prototype images and behavioural willingness were also subjected to a reliability analysis. The results of this analysis are shown in Table 5.18

Table 5.18: Reliability analysis for the prototype willingness model

<b>Construct</b>	<b><math>\alpha</math></b>
<b>Prototype Drinker Image</b>	.71
<b>Prototype Non-Drinker Image</b>	.72
<b>Behavioural Willingness</b>	.61

The results for the drinker and non-drinker prototypes showed high reliability. The reliability score for the behavioural willingness subscale showed moderate reliability but had improved since the previous study. This may have been affected by the number of the participants within the study.

#### 5.10.5.5.3 Personality Characteristics

Table 5.19: Reliability analysis for each of the personality characteristics.

<b>Construct</b>	<b><math>\alpha</math></b>
<b>Hopelessness Introversion</b>	.76
<b>Impulsivity</b>	.20
<b>Sensation Seeking</b>	.57
<b>Anxiety Sensitivity</b>	.74

The hopelessness and anxiety sensitivity scales showed high levels of reliability (Hinton, McMurray & Brownlow, 2014) within this sample of participants. The sensation seeking characteristic showed moderate reliability and the impulsivity scale showed low reliability. These reliability scores were lower than in the

previous study, which may be due to impulsivity declining towards adulthood (Windle et al, 2005).

#### **5.10.5.5.4 Social Norms Theory**

A Cronbach Alpha reliability analysis was also performed for the descriptive norm subscale of the social norm theory. The Cronbach's Alpha was .7.

The result of the reliability analysis indicated that the descriptive norm subscale showed high internal consistency (Hinton, McMurray & Brownlow, 2014).

As the social norm construct is compiled of friends' parent's and typical peer's drinking behaviour, the frequencies were compared and are shown in Table 7.16

Table 5.20: Comparison of behaviour

<b>Frequency of Drinking</b>	<b>Typical Person</b>	<b>Friends</b>	<b>Parents</b>	<b>Participant</b>
<b>Do not drink</b>	0	1	0	0
<b>Seldom Drink</b>	2	6	5	4
<b>Less than once a month</b>	1	4	1	5
<b>2-3 times a month</b>	7	11	5	6
<b>Once a week</b>	10	5	4	11
<b>2-4 times a week</b>	10	3	10	1
<b>5-6 times a week</b>	1	1	3	1
<b>Every Day</b>	0	0	3	0

There seemed to be some similarities between drinking behaviour of friends and other typical drinkers and parents and participants. To examine the relationships between these variables correlations were examined.

### 5.10.5.6 Relationships between variables

#### 5.10.5.6.1 Social Norms Theory

Exploratory correlational analyses were performed on the data using a two-tailed Pearson's Correlation, as it was unclear what the relationships may be.

Table 5.21: Relationships between participant, typical person, friends, parents/carers drinking behaviours and descriptive norms

	Participant	Typical Person	Friends	Parents	Descriptive Norm
Participant	1				
Typical Person	.208	1			
Friends	.710**	.398*	1		
Parents	.407*	.004	.594**	1	
Descriptive norm	.480**	.390*	.838**	.572**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).  
\* Correlation is significant at the 0.05 level (2-tailed).

The results of the analysis indicated that participant's drinking behaviour was significantly related to their friend's drinking behaviour and their parent/carer's drinking behaviour. The participants drinking behaviour was also significantly related to the descriptive norm construct. The typical person's behaviour, friend's behaviour and parent's behaviour was also significantly related to the descriptive norm construct. These results suggest that the social norms theory is a valuable contributor to the model of adolescent drinking and intervention design.

#### 5.10.5.6.2 Theory of Planned Behaviour

The relationships between the theory of planned behaviour constructs were also analysed using a two-tailed Pearson correlation coefficient.

Table 5.22: Relationships between theory of planned behaviour variables

	<b>Attitude</b>	<b>Subjective Norm</b>	<b>Control</b>	<b>Intention</b>
<b>Attitude</b>	1			
<b>Subjective Norm</b>	.328	1		
<b>Control</b>	.306	.134	1	
<b>Intention</b>	.533**	.281	.623**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Attitude and perceived behavioural control were significantly related to intention to drink alcohol. There were no other significant relationships between the variables.

The variables were then compared to the social norms variables and it was found that attitude was also significantly, positively related to frequency of drinking ( $r(29)=.513, p<0.01$ ) in that more positive attitudes were related to a higher frequency of drinking. The subjective norm construct was also significantly, positively related to the descriptive norm measure ( $r(29)=.706, p<0.01$ ), with and intention was also significantly related to descriptive norm ( $r(29)=.439, p<0.05$ ). Perceived behavioural control was also significantly correlated with frequency of drinking, ( $r(29)=.406, p<0.05$ ).

#### 5.10.5.6.3 Prototype Willingness Model

The relationships between the prototype willingness variables were examined also using a Pearson's two-tailed correlation coefficient, the results are depicted in table 5.23 below.

Table 5.23: Relationships between prototype willingness constructs

	DrIm	DrImfam	Sim	N/DrIm	N/DrFam	N/DrSim	Will
DrIm	1						
DrImfam	.065	1					
Sim	.520**	.383*	1				
N/DrIm	-.271	.072	.000	1			
N/DrFam	-.171	.477**	-.062	.034	1		
N/DrSim	.126	-.060	-.196	-.007	.218	1	
Will	.185	.344	.212	-.297	-.187	-.221	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Table Key: DrIm (drinker images), DrImFam (drinker image familiarity), Sim (drinker image similarity), N/DrIm (non-drinker image), N/DrFam (non-drinker familiarity), N/DrSim (non-drinker similarity), Will (behavioural willingness).

As can be seen from the table there was a positive, significant relationship between drinker image and similarity, which suggests that those that held a more positive image of drinkers also considered themselves similar to this image. Drinker image familiarity and similarity were also positively, significantly related. However, there were no significant relationships between the prototype images and willingness to drink alcohol. Additional analysis did show that behavioural willingness was significantly positively related to intention ( $r(29) = .622, p < 0.01$ ).

#### 5.10.5.6.4 Relationships between personality characteristics and willingness and intention

The relationships between the personality characteristics and the pre-determinants of behaviour (intention and willingness) were examined using a Pearson's two-tailed correlation coefficient. The results of this analysis are shown in the table below.



Table 5.24: The relationship between personality characteristics and willingness and intention to drink alcohol.

	Sensation Seeking	Hopelessness	Anxiety Sensitivity	Impulsivity	Willingness	Intention
Sensation Seeking	1					
Hopelessness	.193	1				
Anxiety Sensitivity	-.486**	-.117	1			
Impulsivity	.326	.281	-.304	1		
Willingness	.186	.060	-.058	-.035	1	
Intention	.225	.084	-.172	.153	.622**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The results of the Pearson correlation indicated that the sensation seeking trait and the anxiety sensitivity trait were significantly correlated in this sample. However, the personality traits were not related to willingness or intention to drink alcohol. Further analysis revealed that there were no significant relationships between the personality traits and frequency of drinking in this particular sample. However, there was a significant relationship between the impulsivity trait and binge drinking ( $r(21)=.638$ ,  $p<0.01$ ) which supports previous research relating to impulsivity (Quinn & Harden, 2013; Stautz & Cooper, 2013).

### 5.11: Evaluation

This pilot was conducted with an older participant group using an online method of data collection. The results of the pilot study indicated that more of this older group of participants consumed alcohol. The participant's knowledge of alcohol was between 4 and 8 out of 10, suggesting that some of the participants had more knowledge than others. 35% of the participants had scored half marks on the

knowledge quiz, which further indicates that education about alcohol may still be an important component of an intervention.

The behavioural control scale within this version of the questionnaire and with this participant group was unreliable. Therefore the scale was changed to a previous version that had been more reliable “*How confident are you that you could refuse an alcoholic drink at a social event within the next week*”.

The personality characteristic scale reliability was also different in this group of participants with sensation seeking and impulsivity showing poorer reliability. This may have been to the number and ages of the participants in this particular study and were included in the questionnaire due to the previous findings and the significant link between impulsivity and binge drinking behaviour.

## **5.12 Discussion**

The focus groups indicated that alcohol use was influenced by a number of complex interacting factors, that supported several previous theories relating to adolescent alcohol use such as the TPB, (Ajzen, 1991; Todd & Mullan, 2011), PWM, (Gibbons & Gerrard, 1995, 1997; Spijkerman et al., 2007) and the social norms approach (Perkins & Berkowitz, 1986, Perkins, 2003; Perkins, 2007; Neighbors et al., 2011). There was no single model or framework within the literature that accommodated all of these factors in a manner that was easy to operationalize into a universal intervention design that could be used in the PHSE curriculum. Therefore the focus group themes were linked with the literature relating to models and theories that predicted alcohol use to formulate a conceptual model to use a framework for selecting behaviour change techniques as part of the second stage of the intervention mapping approach (Bartholomew et al., 2006). This type of eclectic approach is supported by Bartholomew and colleagues (2006), as often models that predict behaviour are less informative on how to change behaviour.

The resultant framework consisted of a combination of the TPB (Ajzen, 1991), PWM (Gibbons & Gerrard, 1995, 1997), Social Norms Theory (Perkins & Berkowitz, 1986), and Personality Characteristics (Stewart, Conrod, Marlatt, et al., 2006; Woicik, Stewart, Pihl & Conrod, 2009). The personality characteristics were included based on the literature review that personality characteristics were indicative of adolescent substance use (Conrod, et al., 2006; Conrod et al., 2008) and that impulsivity seemed to be at it's peak during adolescence (Windle et al., 2011). Later literature also supported the inclusion as impulsivity has been identified as being predictive of heavy episodic drinking (Stautz & Copper, 2013; Quinn et al., 2013). A questionnaire was devised based on this model in order to be able to evaluate the effectiveness of an adolescent alcohol intervention. Pilot studies were conducted with 11-15 year olds and adolescent/young adults (16-19 year olds) to represent periods of initiation of alcohol and maintenance.

The pilot studies achieved the aim of evaluating the reliability of the subscales or indicating where changes needed to be made. They also provided some interesting results relating to drinking behaviour and relationships between the pre-determinants of drinking.

In accordance with other literature, the majority of the younger sample were yet to initiate drinking (Brookes, 2011), which indicated that this was an appropriate age group to target an intervention. The relationships between the variables indicated that social influences were an important factor to consider in intervention design. This supports other research in the area and also is in accordance with social identity theory (Tajfel & Turner, 1979). Oyserman, Fryberg and Yoder (2007) posit that people tend to engage in health related behaviours to the extent that the behaviours meet the norms of their social identity, and that they perform risky behaviours such as drinking alcohol because it is self affirming to their identity. Therefore, friendship groups may be an important factor for intervention design. Encouraging people to self-categorise to a social identity that is congruent with health may have a more positive impact (Tarrant, Hagger & Farrow, 2012). This may explain some processes involved in the PWM.

Similar results were found in the older age category adding further support to the importance of social identity and normative processes in alcohol use. Friend's behaviour and parent's behaviour was significantly related to participant's own drinking behaviour. This supported a wealth of literature that indicates that friend's drinking behaviour (Dishion, 2013; Osgood, Ragan, Wallace, et al., 2013; Hahm, Kolacyk, Jang, et al., 2012) and parental drinking behaviour (Zucher, Donovan, Mosley et al, 2008; Newbury-Birch, Walker, Avery et al., 2009) can influence initiation and subsequent drinking behaviour.

Other factors that seemed important in the younger pilot were that of impulsivity and willingness. This supported the use of the PWM and personality factors within the questionnaire and within interventions design. Maturation studies and studies of personality and alcohol use have indicated that impulsivity is a factor that in alcohol use (Windle, Spear, Fuglini, et al. 2011; Stewart, Conrod & Marlatt et al, 2005; Bekman, Cummins & Brown, 2011). This was also similar in the older age group with impulsivity and binge drinking demonstrating a positive relationship. This also supports previous literature that has demonstrated that impulsivity is related to increased risk of binge drinking (Quinn & Harden, 2013; Stautz & Cooper, 2013).

Of note, within the TPB component, positive attitudes were related to a higher frequency of drinking and attitudes and perceived behavioural control were significantly related to intention to drink.

There also seemed to be a lack of knowledge about drinking effects and potential harms, with both groups scoring around half marks for the knowledge quiz. These findings suggest that there is a need for a complex intervention that targets a range of factors.

### **5.13: Chapter Summary**

This chapter has described the pilot studies of the questionnaire on the target participant groups. The results indicated that some of the subscales demonstrated low reliability in the first pilot and these were amended to more reliable measures in the second study. In the second study the subscales demonstrated moderate to high reliability except for the impulsivity subscale. This may have been due to the number of participants in this study or be a reflection of the impulsivity within this age group. It was decided to explore the reliability further in the longitudinal study. The next chapter outlines the methodology for the longitudinal study to test the reliability and validity of the questionnaire over time.

## **Chapter Six**

### **Study 3 - Evaluating the Validity of the Questionnaire**

#### **6.1 Chapter Overview**

This chapter is concerned with the rationale and methodology for study 3, which was a longitudinal study to evaluate the questionnaire in terms of threats to external validity. The chapter outlines the background, rationale and aims of the study and then describes the methodology and the procedures employed for statistical analyses.

#### **6.2. Background and rationale**

Each of the subscales has been chosen from previous research (see Chapter 6) and have all demonstrated moderate to high reliability (Hinton, McMurray & Brownlow, 2014). In the current research the pilot studies also indicated that the subscales achieved moderate to high reliability (Hinton, McMurray & Brownlow, 2014). However, the questionnaire had not been evaluated for threats to external validity or test-retest reliability. External validity threats refer to unidentified background variables that are not accounted for by the theory. Studies would lack external validity if these background variables interacted with the study variables and modified the observable effects (Campbell & Stanley, 1966; Calder, Phillips & Tybout, 1982; Yu & Ohland, 2010). The threats to external validity can be examined by examining the reliability and relationships between the constructs across time points in a longitudinal study (Calder, Phillips & Tybout, 1982; Yu & Ohland, 2010). Therefore, a longitudinal study was carried out with undergraduate student volunteers. Ideally, this longitudinal study would have been carried out with the target participant group (11-15) year olds, but unfortunately this study

could not be accommodated in either Schools that were approached or the Youth Organization that had been helpful previously in the focus group research.

### **6.3 Aims**

The aims of the study were to assess the threats to internal and external validity and to examine the relationships between the subscales of the combined model for adolescent alcohol use.

### **6.4 Hypotheses**

H<sub>1</sub>

It was hypothesised that there would be no differences in the subscales between baseline (T1) and follow-up (T3).

H<sub>2</sub>

It was hypothesised that the subscales would demonstrate good internal consistency.

H<sub>3</sub>

It was also hypothesised that there would be relationships between the constructs of the theory of planned behaviour and intention to drink alcohol; drinker images and willingness to drink; friends drinking behaviour and participant drinking behaviour.

## **6.5 Method**

### **6.5.1 Design**

The study was a quantitative longitudinal survey design administered online using Qualtrics at three different time points. Time 1 at baseline; Time 2 (one week later) and Time 3, (4 months later). The observed variables were the theoretical subscales of the combined theoretical model; the TPB (Ajzen, 1991), PWM (Gibbons & Gerrard, 1995, 1997) and the personality subscales for Anxiety Sensitivity, Sensation Seeking, Impulsivity and Hopelessness (Woicik et al., 2009). The Social Norms (Perkins & Berkowitz, 1986) variables consisted of the descriptive norm subscales and the typical person frequency and quantity measures and friend and parent frequency measures.

### **6.5.2. Participants**

Participants were undergraduate psychology students in their first year of study recruited via a link through an online learning environment (BREO). There were 239 participants in total, 193 females and 46 males. The participants were aged between 18 and 48 with a mean age of 20.8 (S.D, 5.18).

### **6.5.3 Materials**

The Questionnaire consisted of the same 7 sections as previously described (see Chapter 6). The front page was similarly constructed as the previous examples and consisted of a paragraph that pertained to ethics (BPS, 2009). As the questionnaire was posted within a learning environment it was explicitly stated that it was entirely voluntary to take part. They were also informed that they had the right to withdraw from the study at any time. They were informed that during the study this could be achieved by exiting the browser and afterward by contacting the researcher by using the contact detail provided. It also reminded the participants that their responses were confidential and anonymous and asked for



an anonymity code consisting of their initials and month and date of birth. Section A consisted of a series of questions relating to the behaviour of the individual participants. Section B consisted of the SURPS questionnaire (Woicik, Stewart, Pihl & Conrod, 2009) relating to personality characteristics, Section C, the theory of planned behaviour measures (Ajzen, 1991; Section D consisted of the prototype willingness model drinker images; Section E, the prototype willingness model non-drinker images; Section F, behavioural willingness and Section G consisted of 10 questions designed to capture knowledge of alcohol.

#### **6.5.4 Procedure**

Following ethical approval from the University's Research Centre for Applied Psychology (RCAP) ethical review board, unit (course, module) co-ordinators were contacted to request permission to post the link in the online learning environment. These links were provided in two different units at baseline, one week later to capture the behavioural outcomes of intention and 4 months later at follow-up. The links were only made available for a limited time to ensure that the time periods were kept separate.

At the end of the survey there was a debrief page that thanked the participants for taking part and provided them with web links and Freephone numbers for alcohol concern and "Talk to Frank" for more information or support with alcohol concerns. The investigator's contact details were provided for questions relating to the study or for withdrawal purposes.

#### **6.5.5 Statistical Analysis**

The statistical analysis for this study was performed using SPSS (v12). The cross sectional analysis was performed using the data from the baseline measure. For the longitudinal analyses the cases were cross referenced and matched using the personal identifying codes and merged into one data set for analysis. All of the items that required reverse scored and averages were calculated for each of the

subscales. The planned analysis for the longitudinal data was MANOVA and Structural Equation Modelling using AMOS (v4). MANOVA was chosen due to the number of observed variables and in order to avoid the risk of a type 1 error (Field, 2009), however this was dependent on the number of participants (see Chapter 11).

## **6.6: Chapter Summary**

This chapter has discussed the background, rationale and methodology for study 3, a longitudinal study to evaluate the threats to external validity. The next chapter is concerned with discussion the results of the cross sectional data analysis of study 3.

## Chapter Seven

### Study 3 - Results of the Cross Sectional Data

#### 7.1 Overview of the chapter

Following on from the previous chapter, this chapter is concerned with detailing the results from the cross sectional analysis of the data in study 3. The results are presented for each of the theories; firstly, the descriptive statistics, followed by a discussion of the behavioural data. The relationships between the variables for each of the theories were then explored and then between theories. The final part of the chapter is concerned with exploratory multiple regression analysis and a stepwise regression to identify which of the correlates best predicted the intention and willingness to consume alcohol.

#### 7.2 Descriptive statistics

##### 7.2.1 Participants

For the cross sectional analysis there was a total of 239 participants, 193 females and 46 males aged between 18 and 48 with a mean age of 20.8 ( $S.D = 5.18$ ). Out of the 239 participants, 188 stated that English was their first language. Forty-four of the participants indicated that their religious beliefs prevented them from drinking. [These participants were recruited during psychology tutorials. The student population was chosen as it was a convenient sample and because of the similarities in motivations to drink.](#)

The means, standard deviations and Cronbach alphas were calculated for each of the scales for each of the theories; The Theory of Planned Behaviour (Ajzen,

1981), The prototype willingness model (Gerrard & Gibbons, 1995, 1997), The social norms theory (Perkins & Berkowitz, 1986), and the personality constructs associated with risky alcohol drinking identified by (Conrod, Pihl, Stewart & Dongier, 2000).

### 7.2.2 Theory of Planned Behaviour Descriptive Statistics

The means, standard deviations and reliability analysis for each of the subscales were calculated and can be seen in Table 7.1 below. The scales all ranged from 1-7, with 4 as the midpoint. The higher values were associated with an agreement with the scale and the lower scores were associated with less agreement with scale.

Table 7.1: Means, standard deviations and item reliability (Cronbach's Alphas for the theory of planned behaviour constructs.

<b>Construct</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Cronbach's Alpha (<math>\alpha</math> =)</b>
<b>Instrumental</b>	3.62	1.20	.80
<b>Attitude</b>	4.63	1.74	.91
<b>Affective Attitude</b>			
<b>Subjective Norm</b>	2.8	1.36	.66
<b>Perceived</b>	5.2	1.22	.70
<b>Behavioural Control</b>			
<b>Intention</b>	3.8	2.08	.95

The reliability of the subscales was excellent for affective attitude and intention, high for instrumental attitude and perceived behavioural control and moderate for the subjective norms measure (Hinton, McMurray & Brownlow, 2014), supporting previous reliability analysis (Armitage & Conner, 2011).

Average attitudes towards alcohol were weaker than expected, being close to the midpoint. As can be seen form Table 7.1 the subjective norm average is lower

than the other mean values and this would seem to indicate that significant others were not considered important in decisions to drink alcohol. The mean score for control was above the midpoint of the scale, which suggests that participants perceived that they had control over their drinking behaviours. The average intention however was towards the negative scale, which could have been due to the number of non-drinkers within the sample and therefore was reanalysed with the drinking sample.

Table 7.2: The means and standard deviations of the TPB scales with non-drinkers removed.

<b>N= 139 Drinkers</b>	<b>Mean</b>	<b>SD</b>
<b>Instrumental Attitude</b>	<b>3.98</b>	<b>.90</b>
<b>Affective Attitude</b>	<b>5.32</b>	<b>1.27</b>
<b>Subjective Norm</b>	<b>3.27</b>	<b>1.22</b>
<b>Perceived Control</b>	<b>5.76</b>	<b>.93</b>
<b>Intention</b>	<b>5.03</b>	<b>1.51</b>

### 7.2.3. Prototype/Willingness Model

Table 7.3: Means, standard deviations and Cronbach Alphas for the prototype willingness model.

<b>Construct</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Cronbach Alpha (<math>\alpha</math> =)</b>
<b>Drinker Image</b>	4.14	.91	.78
<b>Non-Drinker Image</b>	4.78	.78	.74
<b>Willingness</b>	4.21	1.56	.66

There was high reliability for the measures of the prototype-drinking image and the non-drinker images and moderate reliability for the willingness component (Hinton, McMurray & Brownlow, 2014). The mean values for the prototype

willingness constructs were around the midpoint of the scale with small standard deviations. This may suggest that for this age group the images that they hold about drinkers and non-drinkers may differ from younger adolescents. The willingness construct also hovered around the midpoint, which may indicate a more reasoned rather than a reactionary trajectory. This was observed also after removing the non-drinkers as depicted in table 7.4.

Table 7.4: Means and standard deviations with non-drinkers removed.

N=134	Mean	SD
Drinker Image	4.26	.78
Non-drinker Image	4.69	.71
Willingness	4.74	1.32

#### 7.2.4. Social Norms Theory

The means, standard deviations and reliability analysis were conducted for the descriptive norm scale that forms part of the social norm theory measures. The results are shown in Table 7.5

Table 7.5: Means, standard deviation and Cronbach Alpha for the construct of descriptive norms.

Construct	Mean	Standard Deviation	Cronbach Alpha ( $\alpha$ =)
Descriptive Norm	4.65	1.65	.82

The descriptive norm construct had high reliability across the scale. The average score is higher than the midpoint of the scale, which suggests that their friends perceived behaviour did not have a positive or negative effect on their behaviour. However this result does not support the focus group results, which suggested that young adult's tended to belong to groups with similar drinking behaviour to

themselves (see chapter 5). This may have been due to the age of the participants. It is possible that the influence of friend's behaviour lessens over time.

Table 7.6: Represent the descriptive norms for the drinking participants

<b>N=139</b>	<b>Mean</b>	<b>SD</b>
<b>Descriptive Norm</b>	<b>5.34</b>	<b>1.42</b>

### 7.2.5. Personality Constructs

The reliability of the personality characteristics were analysed using a Cronbach's alpha analysis and means and standard deviation were calculated for each of the scales. The results of these analyses are shown in the Table 9.4 below.

Table 7.7: Means, standard deviations and reliability analysis for the personality characteristics.

<b>Construct</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Cronbach Alpha (<math>\alpha</math> =)</b>
<b>Hopelessness</b>	1.69	.51	.82
<b>Sensation Seeking</b>	2.47	.66	.70
<b>Anxiety Sensitivity</b>	2.63	.60	.68
<b>Impulsivity</b>	2.18	.58	.62 (excluding item 22)

The personality scales were unipolar, with participant responses ranging 1 (low on the scale e.g. a low level of hopelessness) and 4, which would indicate a higher level e.g. a higher level of hopelessness. The mean scores indicate that the participants scored more highly on the Anxiety Sensitivity and Sensation Seeking subscales. The personality measures of hopelessness and Sensation seeking demonstrated high reliability for this group of participants and moderate for Anxiety Sensitivity. However, the reliability of the impulsivity scale was low prior to the removal of one item (22) which was "I feel that I have to be

manipulative to get what I want”, which seemed to be adversely affecting the reliability of the scale. Following the removal of this item for this participant group the reliability increased to moderate. The subscales were also considered after the removal of the non-drinker within the sample and the results are depicted in the table below. The results seemed to indicate that this removal did not have a large effect.

Table 7.8: The means and standard deviations for the drinking participants

<b>Construct</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>Hopelessness</b>	1.71	.46
<b>Sensation Seeking</b>	2.57	.56
<b>Anxiety Sensitivity</b>	2.66	.60
<b>Impulsivity</b>	2.28	.59

Overall, the removal of the non-drinkers did not seem to alter the data considerably and this may have been due to the profile of the remaining sample. The remaining participants did not seem to belong to a heavy drinking group. This may be related to the way that data was collected (in tutorials). Maybe the heavier drinkers were also not attending tutorials and /or declined to take part.

### **7.3 Drinking Behaviour**

Drinking behaviour was measured according to the frequency of drinking and the amount of alcohol that was consumed in the previous week, and the previous month. As these were measured by asking about the number of glasses/bottles/cans, the numbers of units were approximated using the Drinkaware calculator to enable comparisons to be made.

#### **7.3.1 Frequency of Drinking**

How often a person drank or was perceived to drink was used as a measure of drinking behaviour. These frequencies are depicted in Table 7.9.



Table 7.9: Frequency of drinking; participants, participants' perception of a typical person of a similar age, participants' friends and participants' parents.

	Freq. Self (N=239)	Freq. Typical (N=239)	Freq. Friend (N=233)	Freq. Parent (N=233)
<b>Do not drink</b>	70	7	57	117
<b>Seldom Drink</b>	26	3	47	26
<b>Drink less than once a month</b>	58	33	35	30
<b>Drink 2-3 times a month</b>	31	53	67	31
<b>Drink once a week</b>	47	115	18	17
<b>Drink 2-4 times a week</b>	5	19	8	1
<b>Drink 5-6 times a week</b>	2	9	1	11

The table indicates that generally participants felt that the typical person drank more alcohol than they did. Few indicated that the typical person was a non-alcohol drinker or were seldom drinkers. The largest number indicated that there was a perception that the typical peer drank once a week. [The estimations for the typical peer for the more frequent categories were larger than self-reported drinking.](#) Their perceptions of their close friends varied and this was more dissimilar to their own drinking behaviour than hypothesised. The largest parent frequency score was in the non-drinker category although a higher number of parents were considered to drink 5-6 times a week, which was more than close friends, the typical person or the self.

### 7.3.2 Amount of alcohol Consumed

Participants indicated how many drinks they had consumed over the past week and the past month. To allow for analysis the amounts of alcohol in terms of glasses were computed into approximate units using the Drinkaware unit calculator. Average examples were used in the absence of specific branded information. In this instance; Wine = 2.2 units, alcopop, 1.5, beer, cider, lager 2.2, strong cider 4.3 and strong beer, 4.5.

The mean weekly consumption was 14.5 units (SD 26.84). 32% of the participants reported consuming no alcohol, 3.8% reported drinking 10 units in the previous week, 32% > 10 units and 31% <10 units.

According to the NHS guidelines, >50 units per week for a male and >30 units per week for women falls into the high risk drinking category. Average weekly alcohol consumption was calculated for both male and female participants. There were 46 males in total. The mean weekly consumption was 34.07 units (SD = 41.56), 13% of males had consumed 0 units in the previous week, 69% had consumed >10 units, 45.7% had consumed > 20 units, 32.4% had consumed >30 units. 17.4% had consumed > 50 units in the previous week considered to be in the high-risk category.

There were a total of 191 female participants. The mean alcohol consumption in the previous week was 9.7 units (SD 15.46). In terms of percentages, 36.6% of the females had drunk no alcohol in the previous week and 92.7% had consumed less than 35 units. 26.7% had consumed greater than 10 units, 14.1% >20 units and 7.3% had consumed > 35 units and would be considered to be high-risk drinkers.

### **7.3.3 Type of Alcohol Consumed**

Participants were asked to indicate the amounts that they had drunk in the last month and the last week. The frequency of each type of alcohol beverage consumed is presented in the frequency table 7.10.

### 7.10 Frequency of drinking according to type per month

No. of Participants	Wine	Beer	Cider	Lager	Shot	Alcopop	Strong Cider	Strong Beer
0	129	195	177	203	106	161	214	227
1	18	8	18	5	5	10	12	2
2	19	7	7	2	15	19	6	3
3	17	6	7	3	11	7	2	
4	8	3	4	3	10	10	2	1
5	6		6	2	8	8	1	3
6	10	3	3	4	5	3		1
7	2	1	3		4	3		
8	4	2	2		4	2		
9	1			3	2		1	
10	12	5	2	3	21	5		
11			1					
12	3				3			1
13				1				
15	2		1	2	5	6		
16	1		1					
17				1				1
18	1				1	1		
19					1			
20	5	4	1	2	12	4		
23					1			
24			1					
25			1		5			
30	1	1	2	1	7			
35				1	3			
40				1	3			
50		1		2	5			
59								
60					1			
65			1					
70					1			
80		1						
100		1	1					

The most popular drink in the previous month seemed to be shots. 100 of the participants had drunk at least one alcoholic drink in the previous month.

### 7.11 Frequency of drinking per type per week

No. of Participants	Wine	Beer	Cider	Lager	Shot	Alcopop	Strong Cider	Strong Beer
0	174	213	207	216	152	199	230	233
1	25	9	6	7	10	14	7	1
2	12	4	11	1	16	10	1	
3	8		5	2	8	3		3
4	11		1	4	8	1		1
5	4	1	2	4	4	6		
6	2	1			8	1		
7		1	1		6	1		
8		1	1		3	1		
9				1	2			
10		2		3	2	1		
11								
12	1	1	4		2		1	
13					1			
15	2				7			
16						1		
17								
18		1			1			
19								
20		1			5			
21								1
23								
24								
25		1	1		1			
30				1	1			
35								
40					1			

The highest numbers of alcohol drinks consumed were spirits, which included shots of alcohol such as vodka and shots of alcohol with mixers (e.g. vodka and red bull). This suggests that shots were a popular drink of choice amongst drinking participants. The lowest numbers consumed were strong cider and strong beer suggesting that this was a less popular drinking option. There was not much difference between wine, beer, cider, lager or alcopops although wine was the most popular of these and alcopops were the least popular.

## 7.4 Relationships between variables

This section describes the relationships between the variables of the various theories and drinking behaviours.

### 7.4.1 Theory of Planned Behaviour

Relationships between the construct variables from the theory of planned behavior; attitude, subjective norm, perceived behavioural control and intention were analyzed using a two-tailed Pearson's correlation with weekly and monthly alcohol consumption. A two-tailed test was chosen as it was an exploratory test and little was known about the direction of the relationship (Field, 2009).

Table 7.12: Pearson's correlation table to depict the relationships between the Theory of Planned Behaviour constructs and weekly and monthly unit intake.

	Instrumental Attitude	Affective Attitude	Subjective Norm	Control	Intention	Units per week	Units per month
<b>Instrumental Attitude</b>	1						
<b>Affective Attitude</b>	.690**	1					
<b>Subjective Norm</b>	.293**	.331**	1				
<b>Control</b>	.419**	.543*	.399**	1			
<b>Intention</b>	.460**	.589**	.565**	.706**	1		
<b>Units per week</b>	.143*	.247**	.267**	.311**	.340**	1	
<b>Units per months</b>	.223**	.299**	.352**	.366**	.436**	.871**	1

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

Instrumental attitudes were significantly positively associated with affective attitudes, which suggests that more positive opinions relating to whether alcohol is good or bad were related to positive opinions of whether alcohol was enjoyable. Instrumental attitudes were positively associated with subjective norms. This suggests that the more approval of participants drinking from close others such as family and friends was related to whether alcohol was considered to more positive opinions of alcohol use. Positive alcohol opinions were also related to more positive perceptions of control over drinking, positive intentions to drink and weekly and monthly alcohol unit intake.

More positive opinions of whether alcohol was enjoyable were related to more positive perceptions of control over drinking behaviour. These positive affective attitudes were also positively related to intention to drink alcohol and weekly and monthly alcohol unit intake.

There was also a significant relationship between subjective norm, perceived behavioural control and weekly and monthly alcohol intake. Perceived behavioural control was significantly associated with intention to drink alcohol and weekly and monthly measures of alcohol intake. There was a strong relationship between weekly unit intake and monthly unit intake.

This suggests that the participant's drinking behaviour was related to their attitudes towards drinking, the opinions of significant others such as close friends and family, how much control over drinking situations they perceived themselves to have and their intention to drink. These results suggest a positive relationship between the theory of planned behaviour and intention to drink and drinking behaviour.

### **7.4.2 The Prototype/Willingness Model**

The primary analysis with the prototype willingness model consisted of analysing the relationships between the similarity and favourability measures and drinker and non-drinker images.

#### **7.4.2.1 Relationships between drinker images and similarity and favourability**

There was a positive relationship between drinker images and similarity  $r(222) = .41, p < .01$ . This suggests that greater similarity was associated with more positive drinker images. There was also a positive relationship between the similarity measure and the favourability measure  $r(222) = .23, p < .01$ , which suggests that participants' drinking images were related to their own self image. However, there was no relationship between favourability and drinker image.

#### **7.4.2.2 Relationships between drinker image, similarity and willingness**

There was a positive correlation between drinker image and willingness  $r(222) = .24, p < .01$  with positive drinker images being related to a greater willingness to drink alcohol should the opportunity present itself. The more positive perceived similarity to the drinker images were also related to a greater willingness to drink alcohol,  $r(222) = .27, p < .01$ . This would suggest that the more positive a drinker image and the greater similarity to the perceived image were related to a greater willingness to drink alcohol.

#### **7.4.2.3 Relationships between non-drinker images and similarity and favourability**

The relationships between non-drinker images and similarity and favourability were then analysed using a Pearson's correlation. The results indicated that there

was a positive relationship between non drinker image and similarity  $r(222) = .24$ ,  $p < .01$ , non drinker image and favourability  $r(222) = .22$ ,  $p < .01$  and between similarity and favourability  $r(222) = .29$ ,  $p < .01$ . This suggests that those with more positive non-drinker images also considered themselves to be similar to this positive non-drinker image and that the image was more favourable.

#### 7.4.2.4 Relationships between willingness and favourability

There was a negative correlation between willingness and non-drinker image favourability  $r(222) = .25$ ,  $p < .01$ , suggesting that willingness was related to the favourability of the non-drinker image was related to their willingness to drink alcohol.

### 7.5 Relationships between the prototype willingness model and frequency of drinking

The relationships between similarity to drinker and non-drinker images were then compared to actual drinking behaviour in the previous week and month using average unit measures. The results of the analysis are shown in Table 7.13.

Table 7.13: Relationships between the Prototype Willingness Model variables and weekly and monthly alcohol intake measured in approximate units.

Construct	Drinker Image	Non-Drinker Image	Willingness	Units last week	Units last month
Drinker Image	1				
Non-Drinker Image	-.023	1			
Willingness	.240**	-.071	1		
Units last week	.077	-.009	.241**	1	
Units last month	.112	-.064	.245**	.871**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).



There was a significant association between drinker images and a willingness to drink alcohol if the situation arose. There was also a relationship between willingness to drink and weekly and monthly unit intake. No relationship was found between non-drinking images and willingness to drink or non-drinker images and weekly or monthly intake. This would suggest that those with positive drinker images are more likely to be willing to engage in drinking behaviour and those that have more negative drinking images. Those participants that had consumed alcohol in the previous past week and past month were more likely to be willing to consume alcohol if the opportunity presented itself.

## 7.6 The relationships between Social Norms variables

The next stage of the analysis was to observe the relationships between the social norms variables of the descriptive norm scale, the frequency of friend's drinking behaviour and the typical peer's drinking behaviour. The results of the analysis are shown in table 7.14.

Table 7.14: Relationships between typical adolescents drinking behaviour, a close friend's drinking behaviour and participant's drinking behaviour.

Construct	Frequency	Typical Person frequency	Friend Frequency
Frequency	1		
Typical Person frequency	272**	1	
Friend Frequency	575**	309**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The results of the analysis indicated that there was a significant relationship between a perceived typical adolescent's behaviour and participants' own drinking behaviour. There was also a significant relationship between close friends estimated drinking behaviour and participants' own drinking behaviours.

This suggests that drinking behaviour may be associated with the perceived behaviour of close friends and typical peers.

### 7.7 The Relationships between Personality and frequency of drinking

The relationships between the personality characteristics and to drinking behaviour were also analysed using a 2-tailed Pearson's correlation.

Table 7.15: Relationships between the personality characteristics and participant's drinking behaviour in terms of frequency of drinking.

Construct	Hopelessness	Anxiety Sensitivity	Impulsivity	Sensation Seeking	Frequency of Drinking
Hopelessness	1				
Anxiety Sensitivity	.022	1			
Impulsivity	.044	.245**	1		
Sensation Seeking	-.046	-.080	.302**	1	
Frequency of Drinking	.053	.042	.137*	.225**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

The results of the analysis indicated that there was a positive relationship between impulsivity and anxiety sensitivity, in that those that scored more highly on the impulsivity scale also scored more highly in anxiety sensitivity. Similarly, those that scored highly in sensation seeking also scored highly in impulsivity. Impulsivity and sensation seeking were also positively associated with drinking behaviour, suggesting that those that scored highly in impulsivity and sensation seeking were more likely to drink.

### **7.8 Relationships between theory of planned behaviour, prototype willingness model, personality, social norms theory variables and heavy episodic behaviour.**

Binge drinking behaviour was measured using a free text box asking the participants to indicate the most that they had drunk on one single occasion within the last six months. These descriptions were then used to approximate the units consumed using the Drinkaware calculator. These average approximations were then compared to scores on the various subscales for the various theories.

The results of the analysis indicated that heavy episodic drinking (binge drinking) was related to descriptive norm  $r(207) = .42, p < .01$ , suggesting that friend's drinking behaviour was related to heavy episodic drinking behaviour. Heavy episodic drinking was also related to instrumental attitude  $r(209) = .30, p < .01$  and affective attitude  $r(213) = .40, p < 0.01$ , suggesting that those who had positive opinions about alcohol were more likely to engage in heavy episodic drinking. The subjective norm construct was also significantly related to heavy episodic drinking;  $r(207) = .34, p < .01$ , which suggests that the positive opinions of significant others were also related to the participants' heavy episodic drinking behaviour. Higher perceived control  $r(207) = .35, p < .01$ , was also related to increased heavy episodic drinking behaviour as was intention;  $r(207) = .49, p < .01$ . In the prototype willingness model binge drinking was positively associated with positive drinker image  $r(207) = .2, p < .01$ , and a willingness,  $r(207) = .33, p < .01$  to drink if the opportunity presented itself. The relationships between the personality characteristics and binge drinking behaviour indicated positive relationships with impulsivity  $r(207) = .21, p < .01$  and sensation seeking  $r(207) = .29, p < .01$ .

There were significant relationships between the sensation seeking characteristics and binge drinking behaviour and impulsivity and drinking behaviour. No relationships were found between anxiety sensitivity and previous binge drinking and hopelessness and previous binge drinking behaviour. For a full correlation matrix including all of the variables please see Appendix D.

## 7.9 Multiple Regression Analysis

Multiple regression analysis was performed on each of the models to predict intention in drinking using the enter method. The enter method was used as an exploratory regression analysis to get a feel for the data. The enter method of multiple regression was used as this method is suitable when conducting exploratory multiple regression and does not have any theoretical basis for entering the variables in a particular order (Hinton et al, 2014). Multiple regression is based on the assumption that the predictor variables are linear predictors and that the predictor variables should not correlate highly with each other (multicollinearity). Prior to multiple regression analysis tolerance statistics were found to be less than 0.9 (Hinton et al, 2014) and VIF statistics  $>.4$  (Field, 2013).

### 7.9.1 Theory of Planned Behaviour

In order to analyse whether the constructs of the theory of planned behaviour predicted intention to drink the independent variables of attitude, subjective norm and control were entered into a linear regression using the enter method with the dependent variable of intention.

The results of the analysis are listed in Table 7.16 below:

Table 7.16: Regression analysis of the TPB

Model	<i>B</i>	<i>SEB</i>	<i>β</i>
Attitude	.35	.08	.21***
Subjective Norm	.47	.07	.30***
Control	.81	.08	.48***
$R^2 = .63, \Delta R^2 = .62$			
*** $p < .001$			

The results of the analysis indicated that the attitude, subjective norm and control explained 63% of the variance to drink alcohol. This suggests that this model fits the data well.

#### 7.9.1.1 Theory of Planned Behaviour and Past Behaviour

The analysis was repeated with the added variable of the frequency of drinking measure to illustrate past behaviour. The results are depicted in Table 7.17.

Table 7.17 Multiple regression analysis using the enter method for the constructs of the TPB and past behaviour.

<b>Model</b>	<b><i>B</i></b>	<b><i>SEB</i></b>	<b><i>β</i></b>
Attitude	.21	.07	.13**
Subjective Norm	.28	.06	.18***
Control	.49	.08	.29***
Frequency of drinking	.59	.06	.46***
$R^2 = .74 \Delta R^2 = .73$			
** $p < .01$ , *** $p < .001$			

With the addition of frequency of drinking the model explained 73% of the variance of intention to drink alcohol. This suggests that the theory of planned behaviour variables and past drinking behaviour predicted intention to drink.

#### 7.9.2 Prototype Willingness Model and Descriptive Norms

The prototype willingness constructs of drinker images, non-drinker images and behavioural willingness were entered, with the dependent variable of intention. As the descriptive norm construct is also considered to be part of the prototype

willingness model, it was also entered. The results of the analysis are represented in Table 7.18.

Table 7.18: Multiple regression analysis for the prototype willingness model and the descriptive norm measure for the dependent variable of intention.

<b>Model</b>	<b><i>B</i></b>	<b><i>SEB</i></b>	<b><i>β</i></b>
Drinker Image	.25	.11	.14*
Non-Drinker Image	-.15	.12	-.07
Willingness	.43	.06	.42***
Descriptive Norm	.46	.45	.48***
$R^2 = .24 \Delta R^2 = .23$			
* $p < .05$ ** $p < .01$ ,			
*** $p < .001$			

The results indicated that the prototype willingness model explained 24% variance in intention to drink, with willingness and descriptive norm being the strongest predictors and drinker images also being a significant predictor.

A further analysis was conducted to observe the predictive capability of drinker images and non-drinker images on willingness to drink alcohol. The results of the regression analysis are represented in the Table 7.19.

Table 7.19: A table to represent the results of the regression analysis for drinker and non-drinker images and willingness to drink.

<b>Model</b>	<b><i>B</i></b>	<b><i>SEB</i></b>	<b><i>β</i></b>
Drinker Image	.41	.11	.24***
Non-Drinker Image	-.13	.13	-.66
$R^2 = .06 \Delta R^2 = .05$			
, *** $p < .001$			

The results of the regression were significant  $p < .001$  in predicting willingness to drink alcohol. The model explained 6% of the variance in willingness to drink.

### 7.9.3 Social Norms Theory

As the descriptive norm scale was significant in predicting intention in a previous analysis the other measures within the social norms theory were added and a further multiple regression analysis was performed with the inclusion of descriptive norms, the friends frequency of drinking measure and the typical person frequency of drinking measure and the perception of the typical amount that a typical person consumed on a typical occasion. The results of the analysis are depicted in the Table 7.20

Table 7.20: Multiple Regression Analysis of Social Norms Theory and Intention

<b>Model</b>	<b><i>B</i></b>	<b><i>SEB</i></b>	<b><i>β</i></b>
Descriptive Norm	.55	.09	.43***
Friend Freq.	.25	.10	.16**
Typical Person Freq.	-.08	.10	-.04
Typical Person Amount	.31	.10	.19**
$R^2 = .41 \Delta R^2 = .40$			
** $p < .01$ , *** $p < .001$			

The results of the analysis indicated that the social norms theory explained 41% of the variance in intention to drink alcohol. The most significant predictor of intention in this model was the descriptive norm variable, suggesting that friends drinking behaviour was the most significant variable in predicting intention. The other significant predictors were how often friends drank and also the perceived amount that was drunk by the typical person of a similar age.

### 7.9.4 Personality

The personality characteristics were entered into a regression model with the dependent variable as intention to drink. The results of this regression using the enter method is depicted in Table 7.21 below:

Table 7.21: Multiple regression analysis for the personality characteristic variables and intention to drink.

<b>Model</b>	<b><i>B</i></b>	<b><i>SEB</i></b>	<b><i>β</i></b>
Hopelessness	.32	.26	.08
Anxiety Sensitivity	.16	.24	.05
Impulsivity	.17	.25	.05
Sensation Seeking	.70	.22	.22**
$R^2 = .06 \Delta R^2 = .05$			
** $p < .01$			

The personality characteristics only predicted 6% of the variance in intention to drink alcohol, with sensation seeking being the most significant predictor.

#### **7.9.5: TPB, Prototype Willingness, Social Norms and Personality Constructs.**

The constructs were then combined into the hypothesised single model and further regression analysis was performed.

Table 7.22: Multiple regression analysis using the enter method for the dependent variable of intention.

<b>Model</b>	<b><i>B</i></b>	<b><i>SEB</i></b>	<b><i>β</i></b>
Attitude	.16	.08	.09*
Subjective Norm	.28	.08	.18***
Perceived Control	.52	.09	.30***
Frequency of Drinking	.58	.07	.45***
Drinker Image	.18	.09	.08*
Non-Drinker Image	-.01	.10	-.00
Willingness	.05	.06	.04
Typical Person Freq	-.09	.07	-.05
Typical Person Amount	-.00	.07	-.00
Friend Frequency	-.04	.07	.03



Parent Frequency	-.02	.05	-.01
Descriptive Norm	.02	.08	-.01
Sensation Seeking	.06	.13	.02
Impulsivity	.03	.14	.01
$R^2 = .75 \Delta R^2 = .73$			
* $p < .05$ , *** $p < .001$			

The combined model explained 75% of the variance in intention to consume alcohol. This suggests that combining the theory of planned behaviour with the prototype willingness model, social norms model and personality constructs explains more of the variance in intention to drink than the TPB alone. The significant predictors were a combined attitude measure, subjective norm, perceived control, past behaviour and positive drinker images.

With regard to previous theory, the enter methods confirmed that the TPB explained the greatest amount of variance in intention to drink. This is in concordance with the previous literature (Todd & Mullan, 2011; Collins & Carey, 2007; Jamison & Myers, 2008). However, the current framework or model consist of a combination of other variables that have previously been linked with drinking behaviour such as personality characteristics (Conrod et al., 2000), social norms factors such as typical peer drinking and friends behaviour (Perkins & Berkowitz, 1986; Lewis & Neighbours, )As other variables have also been included in the current model such as past behaviour and friend and typical peer drinking behaviour a stepwise regression was also performed. The stepwise analysis was performed to examine and understand which of the variables contributed most to the model. The results of this analysis are shown in the Table 7.23.

The justification for a forward stepwise method is that according to Field (2009), each of the predictors is entered into the model according to the highest simple correlation. If the predictor significantly increases the predication of the outcome then this is retained within the model. The next predictor is chosen based on the largest semi-correlation with the outcome. As the new variables are entered then a

test is also run for removing the least useful predictor and so is constantly reassessed (Field, 2009). This means that it is possible to evaluate which of the combination of the variables are the best predictors of intention to drink. Although, analysis is usually driven by theory, this exploratory approach was taken to try and evaluate the model framework.

**7.10 Stepwise regression Table 7.23**

<b>Model</b>	<b><i>B</i></b>	<b><i>SEB</i></b>	<b><i>β</i></b>
<b>Step 1</b>			
Frequency	1.018	.054	.786***
<b>Step 2</b>			
Frequency	.728	.061	.561***
Control	.635	.082	.363***
<b>Step 3</b>			
Frequency	.623	.062	.481***
Control	.585	.079	.334***
Subjective Norm	.297	.062	.197***
<b>Step 4</b>			
Frequency	.573	.063	.442***
Control	.502	.082	.287***
Subjective Norm	.283	.061	.187***
Affective Attitude	.169	.051	.140***
<b>Step 5</b>			
Frequency	.551	.063	.425***
Control	.514	.081	.294***
Subjective Norm	.276	.060	.183***
Affective Attitude	.152	.051	.127**
Drinker Image	.207	.081	.091
<b>Step 6</b>			
Frequency	.570	.063	.440***
Control	.513	.080	.293***
Subjective Norm	.277	.060	.183***
Affective Attitude	.164	.051	.136***
Drinker Image	.212	.080	.093**
Typical Peer Freq.	-.135	.064	-.075*
$R^2 = .63$ , $\Delta R^2 = .63$ for step 1, $R^2 = .71$ , $\Delta R^2 = .71$ , for step 2, $R^2 = .74$ , $\Delta R^2 = .74$ , for step 3, $R^2 = .76$ , $\Delta R^2 = .76$ , for step 4, $R^2 = .77$ , $\Delta R^2 = .76$ for step 5. * $p < .05$ , ** $p < .01$ , *** $p < .001$			

From these results it would appear that past behaviour was the most significant predictor of intention to drink amongst this group of participants and that the model that best fits this data is past behaviour, perceived control, subjective norm, affective attitude, drinker image and typical peer drinking behaviour measured as frequency of drinking.

A stepwise regression analysis was also performed with the inclusion of age, however the results of the stepwise were the same as without including age (see appendix).

A further stepwise analysis was conducted with the dependent variable of willingness. The results of this analysis are depicted in Table 7.24

Table 7.24: Stepwise regression willingness

<b>Model</b>	<b><i>B</i></b>	<b><i>SEB</i></b>	<b><math>\beta</math></b>
<b>Step 1</b>			
<b>Frequency</b>	.480	.062	.483***
<b>Step 2</b>			
<b>Frequency</b>	.352	.067	.354***
<b>Instrumental Attitude</b>	.381	.091	.284***
<b>Step 3</b>			
<b>Frequency</b>	.493	.075	.495***
<b>Instrumental Attitude</b>	.404	.088	.301***
<b>Friend Frequency</b>	-.298	.080	-.263***
$R^2 = .23$ , $\Delta R^2 = .23$ for step 1, $R^2 = .30$ , $\Delta R^2 = .29$ , for step 2, $R^2 = .34$ , $\Delta R^2 = .33$ , for step 3			
* $p < .05$ , $p < .01$ **, $p < .001$ ***			

The results of the analysis indicated that previous drinking behaviour, measured as frequency of drinking was the most significant predictor of willingness to drink alcohol. The second step in the analysis revealed that instrumental attitude was the next most significant predictor and finally the third most significant predictor of willingness to drink was how frequently friends consumed alcohol. Together, frequency of drinking, instrumental attitude and friend's frequency of drinking predicted 33% of the variance in willingness to drink alcohol.

As there were a large number of religious non-drinkers these responses were filtered out to check whether these responses were affecting the data. The subsequent results revealed little difference. This may have been due to remaining sample including only a small percentage of students that fell into the risky drinking category. Future research could attempt a more purposeful approach to recruiting participants. Other studies such as French and Cooke (2012) recruited their participants from a drinking venue during a drinking occasion for their study on binge drinking in the student population.

## **7.11 Discussion**

This was a cross sectional analysis of data collected at time one or only once from the longitudinal study to test the validity of the questionnaire. It was hypothesised that the TPB variables would be positively associated with intention to drink. It was also hypothesised that positive drinker images would be related to willingness to consume alcohol. It was further hypothesised that participants' friends drinking behaviour would be similar to their own and that they would consider typical behaviour to be greater than their own drinking behaviour. That impulsivity would be significantly associated with willingness to drink and binge drinking behaviour.

The reliability analysis for the subscales revealed that the subscales were all reliable. The removal of the non-drinkers did not seem to have much effect on the mean scores for each of the scales. 96 participants reported never or seldom drinking compared to 43 who drank once a month or more often. 54 drank once a

week or more often. In the reported sample only 17.4% of the male respondents and 7.3% of females reported drinking behaviour in the previous week that fell into the NHS category of risky drinking. The most reported type of alcohol that was consumed shots of spirit either as shots or with mixers. Males seemed to drink more than females with 17.4% males consuming > 50 units (the NHS recommended limit) in the previous week compared to 7.3% of females drinking > 35units (NHS recommended limit).

In terms of relationships, binge drinking or heavy episodic drinking behaviour was related to friend's drinking behaviour, instrumental and affective attitudes, the opinions of significant others (subjective norm), perceived control, intention to drink, positive drinking images, willingness, impulsivity and sensation seeking. This is consistent with previous research in the area such as attitudes and perceived control (Elliot & Ainsworth, 2012; McMillan & Norman, 2003; French & Cooke, 2012), intention (Collins & Carey, 2007; Jamison & Myers, 2008), subjective norms (French & Cooke, 2012), positive drinking images and willingness (Gerrard & Gibbons, 1995, 1997; Ravis, Sheeran & Armitage, 2006) and friends drinking behaviour (Elliot & Ainsworth, 2012; Bosari & Carey, 2008).

More positive drinking images were associated with perceived drinker similarity and willingness to drink. This suggests that those that perceive themselves to be more similar to a positive drinking image were more willing to drink alcohol. This has not always been found in a younger drinking sample (Gibbons, Gerrard, Ouellette et al, 2004) in the USA but is consistent with previous findings in UK sample (Ravis, Sheeran & Armitage, 2006). Ravis et al. (2006) found that similarity to the drinker image was positively related to intention to drink.

The multiple regression analyses suggested that the theory of planned behaviour variables significantly predicted intention to drink and explained 63% of the variance. This is consistent with the previous research, which has demonstrated similar results (Jamieson & Myers, 2008; Collins & Carey, 2007). In the prototype willingness model drinker image and willingness to drink significantly predicted intention to drink which has also been demonstrated in a younger population sample (Ravis, Sheeran & Armitage, 2006). Drinker images also

predicted willingness to drink, which suggests that images and willingness may still be relevant in this particular adult population.

Social norms including the descriptive norm variable, friend's frequency of drinking and typical peer amount also predicted intention to drink, and friend's frequency of drinking was also a significant predictor of willingness to drink. This supports previous research that suggests perceptions of peer's drinking behaviour is significantly related to participants' own drinking behaviour (Lewis & Neighbors, 2006; Bosari & Carey, 2001; Litt & Stock, 2011).

The personality variables were not significant in predicting willingness to drink alcohol and only sensation seeking was significant in predicting intention. There is a wealth of literature that supports impulsivity to be related to alcohol use e.g. Littlefield, Sher & Steinley, 2010 , which suggests that those that are high in impulsivity are more likely to engage in risky drinking. In the current sample there was a small proportion of heavy drinkers and this could explain the lack of significance. The age of the sample may also explain why this sample was non-significant as impulsivity tends to peak in adolescence according to Windle et al. (2011).

Combining the theories into an exploratory multiple regression analysis using the enter method, indicated that the combined model explained 73% of the variance in intention with significant contributions from attitude, subjective norm, perceived control, past behaviour measured as frequency of drinking and drinker images. However, to determine the model that best fit the data a stepwise regression analysis was performed which indicated that past behaviour was the most significant contributor to intention to drink, followed by perceived control, subjective norm, affective attitude, drinker image and typical peer drinking behaviour, measured as frequency of drinking. These findings support the use of a combination of the theories as a model for intervention design.

There are however some potential limitations of the study that need to be considered. One of the limitations of the current study was that the participants were all undergraduate students with an average age of 20. Although on the whole

the participants may still be maturing and some may consider them still in the adolescent stage of development (e.g. Baumrind, 1997; Bogin & Smith, 1996), the results of the study are limited to this age group. It would be difficult to draw comparisons from this group to the younger age group, however the combination of the theories did seem to increase the predictive validity of the model and justify their inclusion.

### **7.12 Chapter Summary**

This chapter has reported the results of the cross sectional analysis of data taken from time 1 of the longitudinal data and from once only respondents. The results seemed to support the combination of the TPB (Ajzen, 1991), PWM (Gerrard & Gibbons, 1995, 1997), social norms (Perkins & Berkowitz, 1986) as a framework for intervention design. However, in order to test the measure for threats to external validity a longitudinal analysis of the data was required. This is reported in the following chapter.



## Chapter Eight

### Study 3- Analysis of the Longitudinal Data

#### 8.1 Overview of the Chapter:

This chapter is divided into several sections comparing the data gleaned from the questionnaire over two time periods, Time 1, at baseline and Time 3, four months later, to assess the threats to external validity of the questionnaire. The chapter begins with descriptive statistics of drinking behaviours, in terms of frequency and amount of alcohol consumption. The reliability and validity of the subscales for the theoretical concepts for the basis of the combined model and questionnaire are assessed using Cronbach's alphas, a series of correlations that compare the relationships between the scales across the time periods and paired t-tests to analyse mean differences. Regression analysis presents the predictive validity of the model.

#### 8.2 Descriptive Statistics

##### 8.2.1 Participants

The participants were those that took part at baseline (Time 1) and at the four-month follow up (Time 3). Data was also collected one-week post baseline measure, but there were too few respondents at this time point for analysis ( $n = 26$ , aged between 18 and 37 with a mean age of 20.3, SD 4.52). The frequency of drinking at time 2 is depicted in table 8.1 below.

**Table 8.1 Frequency of drinking at time 2.**

	<b>No. of Participants</b>
<b>Non-drinkers</b>	10
<b>Seldom drinkers</b>	2
<b>Drink less than once a month</b>	5
<b>Drink 2-3 times a month</b>	1
<b>Drink once a week</b>	7
<b>Drink 2-4 times a week</b>	1

The participants that completed the questionnaire at time 1 (baseline) and time 3 (follow-up) were 60 students aged 18 – 37, with an average age of 19.62 (SD, 3.52). There were 46 females and 14 male participants. This was a total attrition rate of 74% from the baseline measure.

There was data for 176 of these potential dropouts. On examination there were 138 females and 35 males that dropped out aged between 18 and 45, with an average age of 20.83 (SD 4.55). This is representative of psychology students and similar to the profile of the remaining students and therefore difficult to draw assumptions of why they decided to drop out. In terms of their drinking, 76 (43%) were non-drinkers or seldom drinkers and 101 (57%) were drinkers. This again was similar to the participants that were included in the analysis (38% seldom and non-drinkers and 61% were drinkers. Therefore the attrition rate can only be explained by the recruitment method.

For the remaining 60 student participants the frequency of drinking was calculated. The results of this analysis can be seen in the table below.

### **8.2.2 Frequency of Drinking**

Eight participants indicated that religious beliefs prevented them from drinking alcohol. How often participants indicated that they generally drank alcohol is depicted in Table 8.2.

Table 8.2: Frequency of drinking

n = 60	No. of Participants
<b>Non-drinkers</b>	<b>17</b>
<b>Seldom Drinkers</b>	<b>6</b>
<b>Drink less than once a month</b>	<b>13</b>
<b>Drink 2-3 times per month</b>	<b>8</b>
<b>Drink once a week</b>	<b>13</b>
<b>Drink 2-4 times a week</b>	<b>2</b>
<b>Drink 5-6 times a week</b>	<b>1</b>

Sixteen (26.6%) of the participants indicated that they drunk alcohol every week of more often.

### 8.2.3 Number of Units Consumed in the Previous Week

The amount of alcohol that the participants consumed was measured in terms of the number of drinks (glasses, bottles, cans) according to each type of alcohol. In order to make comparisons across the different types of alcohol, the number of drinks indicated was then transposed into approximate units using the Drinkaware drinks calculator. This calculator was used to calculate the units for the average example of each type of alcohol to allow comparison across the data. The approximate numbers of units consumed in the previous week at both time periods, according to type, is depicted in Table 8.3.

Table 8.3 Mean and standard deviations for types of alcohol consumed in T1 and T 3.

<b>Previous Week in Units</b>	<b>Mean</b>	<b>SD T1</b>	<b>Mean</b>	<b>SD T3</b>
<b>Wine</b>	1.04	2.69	1.16	3.39
<b>Beer</b>	1.66	7.20	0.23	1.04
<b>Cider</b>	3.13	8.39	1.33	3.01
<b>Lager</b>	1.10	3.87	0.56	2.15
<b>Shot</b>	12.74	17.09	2.21	4.96
<b>Alcopop</b>	0.80	2.56	0.17	0.68
<b>Strong Beer</b>	0.35	1.92	0.00	0.00
<b>Strong Cider</b>	0.20	0.93	0.50	2.30

From the table the most obvious difference within the mean scores in between the number of shots that had been consumed in the previous week at baseline and four month follow-up. However, there is a large standard deviation, which suggests that this variation may have been due to a small number of participants engaging in heavy episodic drinking.

The most frequently reported drink was shots of alcohol such as vodka in time 1 and cider in time1. However, paired t-tests revealed that there were no significant differences in the mean units of wine, beer, lager, alcopops, strong beer and strong cider between time 1 and time 3. There were significant differences between the mean units of cider ( $t(59)1.980, p=.05$ ) and mean units of shots ( $t(59)5.128, p=.000$ ) between time 1 and time 3, with significantly less cider and shots consumed at time 3. This would suggest that weekly measures may not be an accurate way to measure accurately changes in alcohol intake as these may vary more e.g. the time 1 data collection was at the beginning of term where there are many social activities for people new to University life. An average of the

amount in the previous month may account more for occasions, and give a more reliable representation of alcohol drinking behaviour.

#### 8.2.4 Frequency of drinking in the previous month

The average frequencies for the previous month were calculated using the same method as the weekly measures, and are depicted in Table 8.4.

Table 8.4: Frequency of drinking in the previous month in Time 1 and Time 3

<b>Previous Month in Units</b>	<b>Mean T1</b>	<b>SD T1</b>	<b>Mean T3</b>	<b>SD T3</b>
<b>Wine</b>	4.87	9.55	6.33	11.92
<b>Beer</b>	5.50	22.88	2.64	9.63
<b>Cider</b>	10.53	32.24	4.43	10.33
<b>Lager</b>	4.00	13.83	3.06	10.57
<b>Shot</b>	12.74	17.09	9.89	20.22
<b>Alcopop</b>	3.85	6.90	2.10	4.20
<b>Strong Beer</b>	0.35	1.92	0.80	5.81
<b>Strong Cider</b>	0.20	0.93	0.50	2.30

As the table shows there was less difference in the amount of shots consumed in the previous month between Time 1 and Time 3. The standard deviation calculations show that there was a large variation between the amounts that the participants consumed, with some participants consuming considerably more than others.

Paired t-tests indicated that the differences between the mean monthly unit intake at time 1 and time 2 were not significant for wine, beer, cider, lager, shots, strong beer or strong cider. There was a significant difference between mean scores for alcopops ( $t(59)=2.169, p=.03$ ), with the mean intake at time 3 being significantly lower than for time 1. The most popular drinks were shots in time 1 and 3 and there were no significant changes in mean scores for shot intake. This may

indicate that monthly measures may be a more reliable measure of changes in alcohol intake.

### 8.3 Constructs and Scales, reliability and validity

The reliability of the scales between the two time periods was calculated according to each of the separate theories using Cronbach Alphas.

#### 8.3.1 Theory of Planned Behaviour

The results of the reliability analysis for the constructs within the theory of planned behaviour are shown in Table 8.5 below;

Table 8.5: Reliability calculations for the constructs of the theory of planned behaviour.

Construct	$\alpha$ at time 1	$\alpha$ at time 3
Affective Attitude	.88	.94
Instrumental Attitude	.73	.85
Subjective Norm	.70	.78
Control	.72	.69
Intention	.96	.95

The Cronbach alphas for the scales for the constructs of the theory of planned behaviour indicate that there was excellent reliability for intention and affective attitude at time 3, high reliability for instrumental attitude and subjective norm and perceived control achieved moderate reliability (Hinton, McMurray & Brownlow, 2014). Scores were similar across the time points, which suggests that these scales were reliable over time also.

### 8.3.2 Prototype/Willingness Model

The reliability of the scales used to measure the constructs of the prototype/willingness model are shown in Table 8.6 below.

Table 8.6: Reliability for the scales used for the prototype/willingness model.

Construct	$\alpha$ at time 1	$\alpha$ at time 3
Drinker Image	.80	.84
Non-Drinker Image	.84	.86
Willingness	.66	.68

The drinker and non-drinker image scales were similar across the time points suggesting reliability over time. The drinker and non-drinker images showed high levels of reliability, and the willingness scale showed moderate reliability (Hinton, McMurray & Brownlow, 2014).

### 8.3.3 Social Norms Theory

The social norms theory for the purpose of the current study consisted of the descriptive norm scale and the measurements of participants' perceptions of drinking behaviours of other people of a similar age, close friends and parents/carers. The descriptive norm construct was measured as a scale and the reliability was calculated using Cronbach's Alpha, the result was  $\alpha = .83$  at time 1 and  $\alpha = .89$  at time 3.

The descriptive norm scale showed high reliability at time 1 and at time 3 (Hinton, McMurray & Brownlow, 2014).

### 8.3.4 Personality Constructs

The reliability of the personality subscales of the SURPS measure are shown in Table 8.7 below;

Table 8.7: Reliability of the personality subscales of the SURPS questionnaire.

<b>Construct</b>	<b><math>\alpha</math> at time 1</b>	<b><math>\alpha</math> at time 3</b>
<b>Hopelessness</b>	.81	.82
<b>Impulsivity</b>	.63	.72
<b>Sensation Seeking</b>	.66	.69
<b>Anxiety Sensitivity</b>	.67	.69

The hopelessness scale showed and impulsivity scale showed high reliability at time 3 and sensation seeking and anxiety sensitivity showed moderate reliability (Hinton, McMurray & Brownlow, 2014). The scores were similar across the time points, which indicated that the subscales were reliable over time.

## 8.4 Validity

Comparing the mean scores of the constructs for each of the theories at time 1 with mean scores at time 3 with paired t-tests assessed the external validity of the measures. Paired t-tests were chosen due to the small number of participants.

### 8.4.1 Theory of Planned Behaviour

The mean scores and standard deviations for each of the scales for the construct of the theory of planned behaviour were calculated. These are depicted in Table 8.8.



Table 8.8: A table to show the mean scores and standard deviations of the constructs of the theory of planned behaviour at time 1 and time 2.

<b>Construct</b>	<b>Mean T1</b>	<b>SD T1</b>	<b>Mean T3</b>	<b>SD T3</b>
<b>Instrumental</b>	3.625	1.003	3.621	1.173
<b>Attitude</b>	4.816	1.594	4.641	1.742
<b>Affective Attitude</b>				
<b>Subjective Norm</b>	2.196	1.342	3.283	1.269
<b>Control</b>	5.480	1.108	5.333	1.055
<b>Intention</b>	4.338	2.061	3.966	1.960

The average scores for the constructs indicated that attitudes towards alcohol were neither positive nor negative in both time periods. The difference between the mean scores was analysed using a paired t-test, which indicated that there was no significant difference in attitudes between T1 and T3 ( $t(59) = .430, p = .669$ ).

The subjective norm measure yielded an average that indicated a low score which would suggest a perceived disapproval for drinking behaviour from significant others. There was no significant difference between the subjective norm measures at time 1 and time 3 when a paired t-test was performed ( $t(59) = -1.868, p = .067$ ).

The control average indicated that the participants felt that they had some perceived control over their drinking and there were no significant differences between the mean scores for control at time 1 and time 3 according to a paired t-test; ( $t(59) = 1.346, p = .183$ ). The intention averaged for both time periods were around the neutral score indicating neither an intention to drink or not drink. A paired t-test was performed which indicated that there was no significant difference in intention to drink in Time 1 or Time 3, ( $t(59) = 1.830, p = .072$ ). This suggests that the measures for the theory of planned behaviour remained consistent over the time period.

### 8.4.2 Prototype/Willingness Model

The mean scores and standard deviations were also calculated for the scales that make up the prototype/willingness model. The results of the calculations are depicted in table 8.9.

Table 8.9: Means and standard deviations for the scales that represent the prototype/willingness model a time 1 and time 2.

Construct	Mean T1	SD T1	Mean T3	SD T3
<b>Drinker Image</b>	4.213	.814	4.298	.649
<b>Non-Drinker Image</b>	4.831	.785	4.582	.617
<b>Willingness</b>	4.357	1.444	4.466	1.388

The mean drinker images suggest that the participants had generally neither a positive nor a negative image of the typical drinking peer and there was no significant difference in the mean scores when a paired t-test was conducted ( $t(54)=-.908, p=.368$ ). Non-drinker images were more positive in Time 1 than Time 2. A paired t-test was performed which indicated that this difference was significant ( $t(54)=2.551, p=.014$ ). Therefore, non-drinker images were significantly less positive in Time 3. The willingness averages were similar and indicated a slight willingness to consume alcohol should the situation arise, any difference between the mean scores was not significant according to a paired t-test ( $t(54)=-.664, p=.510$ ). The significant difference in the mean scores for non-drinker images suggests that this measure did not remain consistent over time.

### 8.4.3 Social Norms Theory

The mean scores and standard deviations were calculated for the construct of the descriptive norm and the frequency of friends and parents drinking behaviour that make up the theory behind the social norms theory. The results of the analyses are depicted in table 8.10.

Table 8.10: Mean scores and standard deviations of the scales associated with the social norms theory at time 1 and time 2.

<b>Construct</b>	<b>Mean T1</b>	<b>SD T1</b>	<b>Mean T3</b>	<b>SD T3</b>
<b>Descriptive Norm</b>	4.916	1.552	4.929	1.621
<b>Friend Freq.</b>	1.60	1.224	1.58	1.139
<b>Parent Freq.</b>	1.63	1.677	1.52	1.652

The mean scores for the descriptive norm construct indicate that the responses were positive indicating that the close friends' behaviour and approval were important to the participants. Paired t-tests were performed which indicated that there were no significant differences between average scores for the perception of friend's and parents' drinking behaviours or approval of friends of own drinking behaviour; descriptive norm ( $t(59)=-.083, p=.034$ ) and frequency of friend's drinking ( $t(59)=.125, p=.901$ ), parents' frequency of drinking ( $t(59)=.817, p=.417$ ).

### 8.5 Relationships Between the Variables in Time 1 and Time 3

Pearson correlations were performed for each of the measures to assess relationships between the constructs of the theories. These are represented within the theories in Table 8.11, Table 8.12, Table 8.13, and Table 8.14, and across all of the theories in Table 8.15.

### 8.5.1 Relationships within the Theory of Planned Behaviour

Table 8.11: Relationships between the constructs of the theory of planned behaviour at time 1 and time 3.

	I/Att T1	I/Att T3	AfAtt T1	AffAtt T3	Sub/N T1	Sub/N T3	Cont T1	Cont T3	Int T1	Int. T3
I/AttT1	1									
I/AttT3	.547**	1								
AfAttT1	.670**	.362**	1							
AffAtt T3	.483**	.749**	.606**	1						
Sub/N T1	.421**	.376**	.428**	.413**	1					
Sub/N T3	.294*	.436**	.148	.421**	.323*	1				
Cont T1	.311**	.302*	.565**	.483**	.327*	.057	1			
Cont T3	.112	.281*	.317*	.281*	.336**	.218	.695*	1		
							*			
Int. T1	.425**	.362**	.678**	.562**	.549**	.149	.787*	.596**	1	
							*			
Int T3	.318*	.465**	.461**	.625**	.497**	.533**	.561*	.699**	.6	1
							*		.93	
									**	

\*\*Correlation is significant at the 0.01 level (2-tailed)

\*Correlation is significant at the 0.05 level (2-tailed)\_of note are that all of TPB constructs at baseline were significantly related to intention to drink at follow-up.

### 8.5.2 Relationships within The Prototype/Willingness Model

The relationships between the prototype/willingness model at baseline and follow-up were compared using a Pearson's Correlation. The results of the correlation are shown in table?. The prototype willingness model also look at the association

between the participant and the drinker and non-drinker images in terms of how often they consider these images and their perception of their similarity to these images. These constructs are labelled as frequency (Fr), for the frequency of thought and similarity (Sim and S) for the similarity between themselves and the considered images.

Table 8.12: Relationships between the constructs of the prototype/willingness model.

	<b>DrIm</b>		<b>FrDrI</b>		<b>SimD N/Dr</b>		<b>FrN/ S/N/</b>		<b>Will Will</b>	
	<b>T1</b>	<b>T3</b>	<b>mT1</b>	<b>/ImT 1</b>	<b>IMT 1</b>	<b>N/DrI mT3</b>	<b>FrN/ DrT1</b>	<b>S/N/ DrT3</b>	<b>T1</b>	<b>T3</b>
<b>DrImT1</b>	1									
<b>DrImT3</b>	.573**	1								
<b>FrDrImT1</b>	-.131	-.004	1							
<b>S/DrImT1</b>	-.069	-.061	.184	1						
<b>N/DrImT1</b>	.182	.078	.417**	.099	1					
<b>NDrImT3</b>	.482**	.601**	-.009	.029	.229	1				
<b>FrN/DrT1</b>	-.183	.099	.317*	.270*	.190	.194	1			
<b>S/N/DrT3</b>	-.028	.118	.057	.114	.014	.095	.534**	1		
<b>WillT1</b>	.166	.195	-.179	.090	-.069	-.065	-.172	-.065	1	
<b>WillT3</b>	.094	.355**	-.039	-.127	-.131	.050	-.281*	-.201	.630**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Of note, are that the drinker images reported at time 1 were related to the reported drinker images at time 2. However, drinking images were not related to the frequency of consideration of typical drinking images or the measures of similarity to the reported drinking images. Drinking images at time 1 and non-drinker images were significantly related. Drinker Images at time 3 were significantly related to non-drinker images at time 3 and a willingness to drink at time 3. Willingness to drink alcohol at time 1 was significantly related to willingness to drink alcohol at time 3. Non-drinker prototype images were not related to frequency of consideration of typical non-drinkers or rating of similarity to non-drinking prototypical imagery.

### **8.5.3 Relationships within the Social Norms Theory**

The relationships between friends and parents drinking behaviour and descriptive norms are depicted in table 8.13

Table 8.13: Relationships within the constructs related to the social norms theory.

	Typ Freq	TypF reqT 3	Typ Am	Typ Am T3	FrFre q	FrFre q T3	ParFr eq	ParFr eqT3	D/No rm	D/No rmT3	FreqT 3
TypFr eq	1										
TypFr eqT3	.363*	1									
TypA m	.051	-.047	1								
TypA mT3	-.051	-.012	.440*	1							
FrFreq	.125	.033	.122	.221	1						
FrFreq T3	-.027	.108	.252	.206	.647*	1					
ParFre q	.231	.072	.324*	.111	.368*	.382*	1				
ParFre qT3	.045	.117	.317*	.197	.379*	.394*	.809*	1			
D/Nor m	.046	-.042	.254	.250	.763*	.675*	.390*	.339*	1		
D/Nor mT3	-.049	.043	.368*	.276*	.662*	.825*	.414*	.437*	.731*	1	
Freq	.019	-.132	.282*	.183	.618*	.540*	.486*	.527*	.637*	.616*	1
FreqT 3	-.104	-.061	.280*	.133	.407*	.588*	.442*	.473*	.509*	.622*	.763**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

There was a significant relationship between the perceived typical person's drinking amount at time 1 and time 3, also with parent frequency of drinking at both time points, frequency of participant drinking at both time points and descriptive norm at time 3. This suggests that estimations of others' drinking behaviour is related to the participant's own drinking behaviour. Friends perceived drinking was significantly related to friends perceived drinking at time 3, parent frequency of drinking at both time points, descriptive norm at both time points and participant's drinking frequency at both time points, which suggest that higher perceived drinking among close friends and parents was related to higher frequency of drinking among participants.

#### **8.5.4 Relationships between Personality Factors at Time 1 and Time 3**

The relationships between the personality factors of sensation seeking (SS), hopelessness insensitivity (HI), anxiety sensitivity (AS) and impulsivity (Imp) are shown in Table 8.14



Table 8.14: Relationships between the personality factors associated with alcohol misuse at time 1 and time 3.

	SST1	HIT1	ImpT1	AST1	SST3	HIT3	AST3	ImpT3
SST1	1							
HIT1	-.154	1						
ImpT1	.188	.132	1					
AST1	-.131	.296*	.193	1				
SST3	.814**	-.212	.181	-.131	1			
HIT3	.041	.531**	.102	.158	-.027	1		
AST3	-.127	.324*	.250	.689**	-.168	.038	1	
ImpT3	.306*	-.045	.692**	.147	.415**	.166	.169	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

There was a significant relationship between sensation seeking characteristics at time 1 and sensation seeking at Time 3 suggesting that scale remained valid over time. Sensation seeking in time 3 was also related to impulsivity in time 3. The same is noted for hopelessness insensitivity, impulsivity and anxiety sensitivity.

#### **8.5.5 Relationships between TPB, PWM, Social Norms and personality characteristics and intention**

A further correlation was performed for all of the variables for the theory of planned behaviour, prototype willingness mode, social norms theory and personality characteristics and their relationship to intention in Time 3. The results of this analysis are shown in Table 8.15.

Table 8.15

Key: Att = Attitude;; S/Nor = Subjective Norm; Int = Intention; D/Im = Drinker Image; N/Dr/Im = Non-Drinker Image; Fr/Fr = Friend Frequency; Typ/Pers/Fr = Typical person Frequency; Typ.Per.No = Typical Person amount; P/Fr = Parent Frequency; D/Nor = Descriptive Norm; SS = Sensation Seeking; HI= Hopelessness; Imp = Impulsivity; AS= Anxiety Sensitivity;

	Att T1	S/Nor T1	Cont.T1	Int. T1	D/Im T1	N/Dr/ In T1	Will/T1	Fr/Fr/T 1	Typ/P ers/F r T1	Typ/P er/No . T1	P/Fr T1	D/Nor/ T1	SST 1	HIT1	Imp T1	AST1	IntT 3
Att T1	1																
S/Norm T1	.458**	1															
Cont.T1	.462**	.327*	1														
Int. T1	.587**	.549**	.787**	1													
D/Im T1	.350**	.128	.247	.266	1												
N/Dr/In T1	.052	-.195	.009	-.089	.182	1											
Will/T1	.555**	.349**	.419**	.486**	.166	-.069	1										
Fr/Fr/T1	.368**	.577**	.379**	.467**	.109	.060	.203	1									
Typ/Pers/ Fr T1	-.011	.140	-.021	-.076	.152	.102	-.053	.108	1								
Typ/Per/N o. T1	.371**	.171	.142	.234	.123	.273*	.203	.128	.051	1							
P/Fr T1	.412**	.267*	.347**	.265*	.360**	.160	.221	.365**	.252	.303*	1						
D/Nor/T1	.677**	.640**	.437**	.590**	.257	.078	.489**	.718**	.046	.254	.344*	1					
											*						
SST1	.242	.212	.177	.237	.154	-.036	.224	.159	-.076	.007	.126	.309*	1				
HIT1	-.038	-.097	-.027	-.071	.039	.012	-.048	-.146	.222	.021	.169	-.126	-	1			
													.154				
ImpT1	.186	.232	.067	.078	-.096	.150	.138	.057	.021	.098	.162	.148	.188	.132	1		
AST1	.177	.246	-.003	.105	.035	-.049	-.058	.007	.156	.181	.113	.080	-	.296**	.193	1	
													.131				
IntT3	.417**	.497**	.561**	.693**	.112	-.192	.560**	.423**	-.130	.237	.269*	.477**	.188	-.054	.241	-.021	1

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

The relationships in Table 8.15 show that attitudes, subjective norm, control, intention, willingness, friend's frequency of drinking, parent frequency and descriptive norm measures were related to intention at the time 3 data collection.

#### **8.5.6 Relationships between the TPB, PWM, Personality Characteristics & Social Norms variables and frequency of drinking 4 months later.**

A further exploratory two-tailed correlation was performed to observe the relationships between the variables of the combined model theories and the frequency of drinking at follow-up, four months later. The results of this analysis are shown in Table 8.16.

There was a significant positive relationship between past behaviour measured as frequency of drinking at baseline and the frequency of drinking at follow-up. The other significant, positive relationships between frequency of drinking were intention, descriptive and subjective norms, instrumental and affective attitude, friend's and parent's frequency of drinking, perceived behavioural control and willingness to drink.

Table 8.16 A Correlation table to show the relationships between variables at T1 and willingness to drink at T3.

	Att T1	S/Nor m T1	Cont. T1	Int. T1	D/Im T1	N/D/In T1	Will/ T1	Fr/Fr/ T1	Typ/ pers/ Fr T1	Typ/P er/No . T1	P/Fr T1	D/Nor/ T1	SST1	HIT1	Imp T1	AST1	Will T3
Att T1	1																
S/Norm T1	.458**	1															
Cont.T1	.462**	.327*	1														
Int. T1	.587**	.549**	.787**	1													
D/Im T1	.350**	.128	.247	.266	1												
N/D/In T1	.052	-.195	.009	-.089	.182	1											
Will/T1	.555**	.349**	.419**	.486**	.166	-.069	1										
Fr/Fr/T1	.368**	.577**	.379**	.467**	.109	.060	.203	1									
Typ/Pers/Fr T1	-.011	.140	-.021	-.076	.152	.102	-.053	.108	1								
Typ/Per/No. T1	.371**	.171	.142	.234	.123	.273*	.203	.128	.051	1							
P/Fr T1	.412**	.267*	.347**	.265*	.360**	.160	.221	.365**	.252	.303*	1						
D/Nor/T1	.677**	.640**	.437**	.590**	.257	.078	.489**	.718**	.046	.254	.344**	1					
SST1	.242	.212	.177	.237	.154	-.036	.224	.159	-.076	.007	.126	.309*	1				
HIT1	-.038	-.097	-.027	-.071	.039	.012	-.048	-.146	.222	.021	.169	-.126	-.154	1			
ImpT1	.186	.232	.067	.078	-.096	.150	.138	.057	.021	.098	.162	.148	.188	.132	1		
AST1	.177	.246	-.003	.105	.035	-.049	-.058	.007	.156	.181	.113	.080	-.131	.296**	.193	1	
Will T3	.419**	.488**	.413**	.561**	.094	-.131	.630**	.388**	.039	.393**	.146	.486**	.107	-.084	.145	-.080	1

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

## 8.6. Multiple Regression Analysis

In order to assess which of the models best-predicted intention to drink, a series of multiple regression analysis were performed for each of the models using the pre-determinants of behaviour and intention at time 3. The results are depicted for each model below.

Table 8.17: TPB and Intention

<i>Model</i>	<i>B</i>	<i>SEB</i>	<i>β</i>
Instrumental	-.065	.192	-.039
Attitude			
Affective Attitude	.334	.137	.298**
Control	.942	.155	.510***
Subjective Norm	.481	.130	.313***
$R^2 = .69 \Delta R^2 = .67$			
* $p < .05$ ** $p < .01$ , *** $p < .001$			

The results indicated that the TPB model predicted 67% of the variance in intention to drink at time 3. The most significant contributors to the model were expectancies (affective attitude), perceived control and the approval of others. A further analysis was performed with the prototype willingness model and intention.

Table 8. 18 PWM and Intention

<i>Model</i>	<i>B</i>	<i>SEB</i>	<i>β</i>
Drinker Image	.364	.383	.146
Non-drinker Image	-.314	.449	-.101
Willingness	.686	.163	.518***
$R^2 = .33 \Delta R^2 = .29$			
* $p < .05$ ** $p < .01$ , *** $p < .001$			

The results of the regression indicated that the PWM components at time 3 explained 29% of the variance of intention to drink at time 3, with willingness being a significant contributor to the model. A further analysis was then conducted to examine the combination of the TPB and PWM pre-determinants. The results of the combination model are depicted in Table 8. 19.

Table 8.19 TPB and PWM

<i>Model</i>	<i>B</i>	<i>SEB</i>	<i>β</i>
Attitude	.258	.148	.172
Subjective Norm	.308	.169	.201
Control	.956	.148	.537***
Drinker Image	-.231	.268	-.093
Non-Drinker Image	-.139	.300	-.044
Willingness	.348	.134	.262**
Descriptive Norm	.053	.163	.045
$R^2 = .73 \Delta R^2 = .69$			
* $p < .05$ ** $p < .01$ , *** $p < .001$			

The multiple regression analysis revealed that the combination of the theory of planned behaviour and prototype willingness model explained 69% of the variance in intention to drink alcohol. The most significant predictors were perceived control and willingness. This model seemed to be the model that explained the greatest amount of variance in intention to drink at this time point.

Further analyses were then conducted to observe the pre-determinants of willingness to drink starting with the drinker and non – drinker images of the prototype willingness model. The results of this analysis are presented in Table 8.20

Table 8.20 Drinker and non-drinker images and willingness to drink time 3.

<i>Model</i>	<i>B</i>	<i>SEB</i>	<i>β</i>
Drinker Image	.955	.291	.509**
Non-Drinker Image	-.600	.365	-.255
$R^2 = .17 \Delta R^2 = .14$			
* $p < .05$ ** $p < .01$ , *** $p < .001$			

The regression analysis revealed that the model explained 14% of the variance in willingness to drink alcohol. Drinker images were the significant predictor in that the more positive the drinking images the more willing to consume alcohol.

To examine the effects of the social norms factors, the social norms components of typical peer drinking behaviour, parent behaviour and friend behaviour were entered into a multiple regression.

Table 8.21 Social Norms and Willingness

<i>Model</i>	<i>B</i>	<i>SEB</i>	<i>β</i>
Typical Peer Frequency	.080	.142	.065
Typical Peer Amount	.051	.159	.035
Friend Frequency	-.051	.193	-.052
Parent Frequency	-.068	.093	-.090
Descriptive Norm	.634	.178	.718**
$R^2 = .42 \Delta R^2 = .37$			
* $p < .05$ ** $p < .01$ , *** $p < .001$			

The results of the analysis indicated that the model was significant and explained 37% in the variance in willingness to drink alcohol. The descriptive norm variable was the most significant contributor to the model, which suggests that friends were an important factor in willingness to drink.

Finally the personality variables were analysed in relation to willingness to drink alcohol. The results of this analysis are depicted in Table 8.22



Table 8.22 Personality factors and willingness to drink

<i>Model</i>	<i>B</i>	<i>SEB</i>	<i>β</i>
Hopelessness	-.183	.423	-.057
Impulsivity	.417	.372	.164
Sensation Seeking	.477	.331	.208
Anxiety Sensitivity	-.506	.346	-.198
$R^2 = .14 \Delta R^2 = .07$			
* $p < .05$ ** $p < .01$ , *** $p < .001$			

The model explained 7% of the variance in willingness to drink and there were no significant contributors in this sample.

### 8.7 Path Analysis

The prediction models were examined using SEM procedures and the dependent variable of frequency of drinking at the third time interval to represent behaviour. According to Ullman (2013), structured equation modelling is a confirmatory analysis as opposed to an exploratory analysis, therefore the theories were modelled according to theory. In SEM it is the analysis of the fit indices that enable conclusions to be drawn about the fit of the model to the data. Steiger (1998) suggested that a RMSEA of  $\leq .05$  was indicative of a good fit of the data and a TLI value of  $>.9$  is considered an adequate fit also independently of sample size (see Hu & Bentler, 1999). The results are presented per theory below.

The first analysis was performed on the theory of planned behaviour with a 2-component theory of attitude instrumental attitude (cognitive attitude e.g. good - bad) and affective attitude (expectancy e.g. dull - fun ) As the pre-determinant of behaviour is an intention to perform that behaviour, as behaviour tends to be reported retrospectively, the intention measure from time one was used as a pre-determinant of frequency that was reported at time 3. Therefore, to examine the pre-determinants of the frequency of drinking at time 3 time 1 measures were used. The results of the path analysis are depicted in the path diagram (Figure 8.1) below.

### 8.7.1 Theory of Planned behaviour

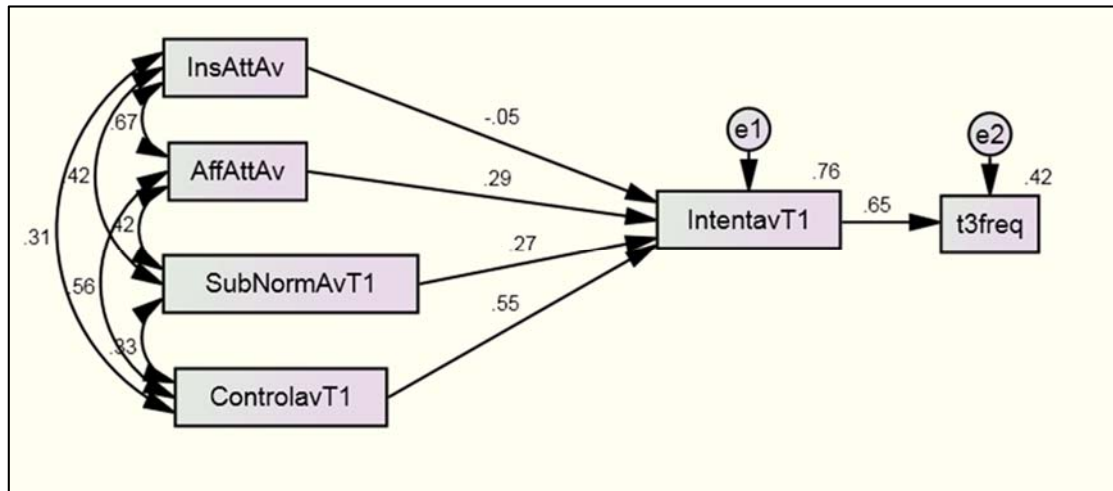


Figure 8.1: Path diagram of TPB with the dependent variable of frequency of drinking.

The results of the analysis  $\chi^2 = 4.024$  ( $df = 4$ ), TLI = 1.000, CFI = 1.000, RMSEA = 0.010 (LO 000- HI.197) AIC = 50.024 indicated that the TPB was a good fit of the data. The paths indicated that affective attitude (AffAttAv)  $B = .289$ ,  $p < 0.01$  subjective norm (SubnormAvT1)  $B = .274$ ,  $p < .001$  and control (ControlavT1)  $B = .555$ ,  $p < .001$  significantly affected intention to drink. Intention significantly affected frequency of drinking  $B = .647$ ,  $P < .001$ .

The affective attitude is linked with the positive effects of alcohol (positive expectancies) that have previously been linked with alcohol use (e.g. Scott- Sheldon et al. 2012). The subjective norm has previously been considered to be a weak predictor of behaviour (Armitage & Conner, 2001) and yet in this model it significantly affected frequency of drinking. This suggests that the opinions of others were significantly linked to behaviour in this sample. Perceived control has also previously been shown to affect behaviour (McMillan & Conner, 2003), however in the current sample control affected intention but not actual frequency of drinking.

A second path analysis was conducted for the prototype willingness model. The Drinking images and non drinking images and willingness measure from time 1 were observed with the dependent variable of frequency of drinking at time 3. The path diagram of the results are depicted in figure 8.2.

### 8.7.2 Prototype Willingness Model

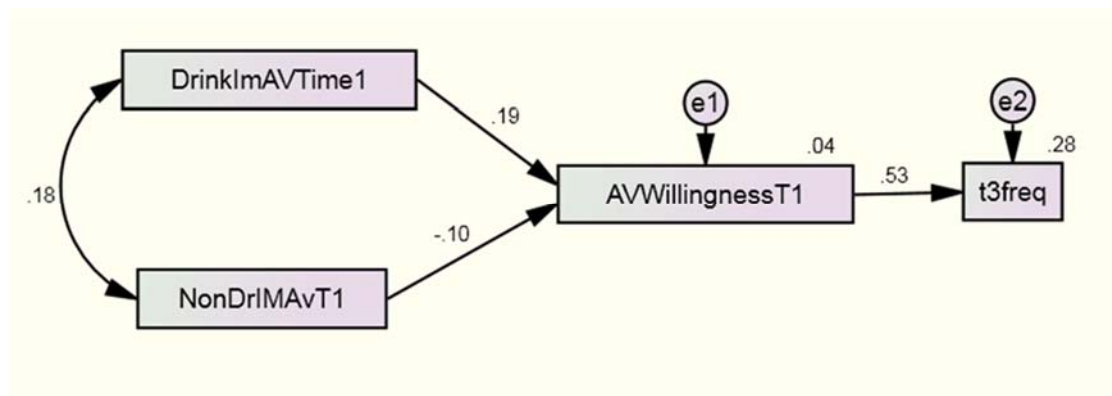


Figure 8.2: A path analysis of PWM.

$X^2 = 3.361$  ( $df = 2$ ),  $TLI = .567$ ,  $CFI = .913$ ,  $RMSEA = .107$  (LO 000-HI .301)  $AIC = 27.361$ . The RMSEA and TLI values indicated that this model was not a good fit of the data. However, looking the paths there was a negative correlation which was not significant for non-drinking images and willingness suggesting that those that rated non-drinking images more positively were also less likely to be willing to drink alcohol. There was also a positive trend between a positive drinking image and willingness. There was a significant path between willingness to drink and frequency of drinking ( $B = .533$ ,  $p < .001$ ), suggesting that greater willingness was associated with drinking behaviour.

### 8.7.3 Path analysis of the social norms theory

The measures of typical teen drinking behaviour and friend and parent behaviour were entered into a model with intention to drink and frequency of drinking at time 3.

The path diagram of the analysis is depicted in figure 8.3

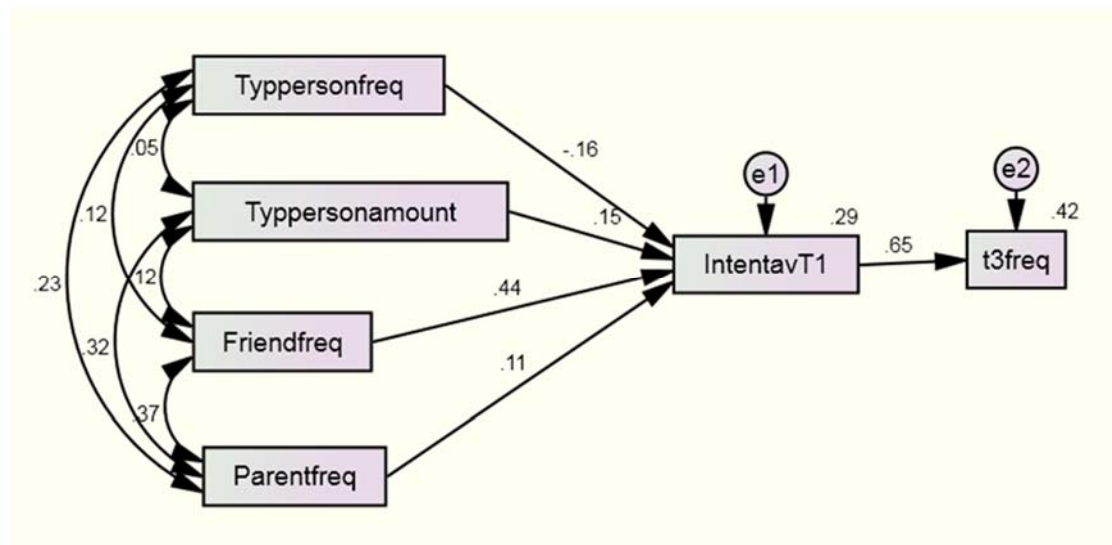


Figure 8.3 Path diagram of the social norms factors and intention to drink T1 and frequency of drinking at time 3.

$X^2 = 10.789$  (df = 4), TLI = .617, CFI = .898, RMSEA = .170 (LO .049- HI .295), AIC = 56.789. These results suggest that this model was not an accurate fit of the data. However, there were significant effects for friend's behaviour (Friendfreq) and intention to drink ( $B = .439$ ,  $p < .001$ ) and intention to drink and frequency of drinking ( $B = .647$ ,  $p < .001$ ).

Friend's drinking behaviour is consistent with literature which suggests that friend's behaviour is influential in predicting behaviour (Connor & McMillan, 1999; McMillan & Connor, 2003; Brooks-Russell, Simons-Morton, Haynie, Farhat & Wang, 2014).

A further path analysis was conducted to consider willingness as a pre-determinant to frequency and the relationships between norms and willingness to drink. The results following the addition of willingness is depicted in the path diagram (figure 8.4) below.

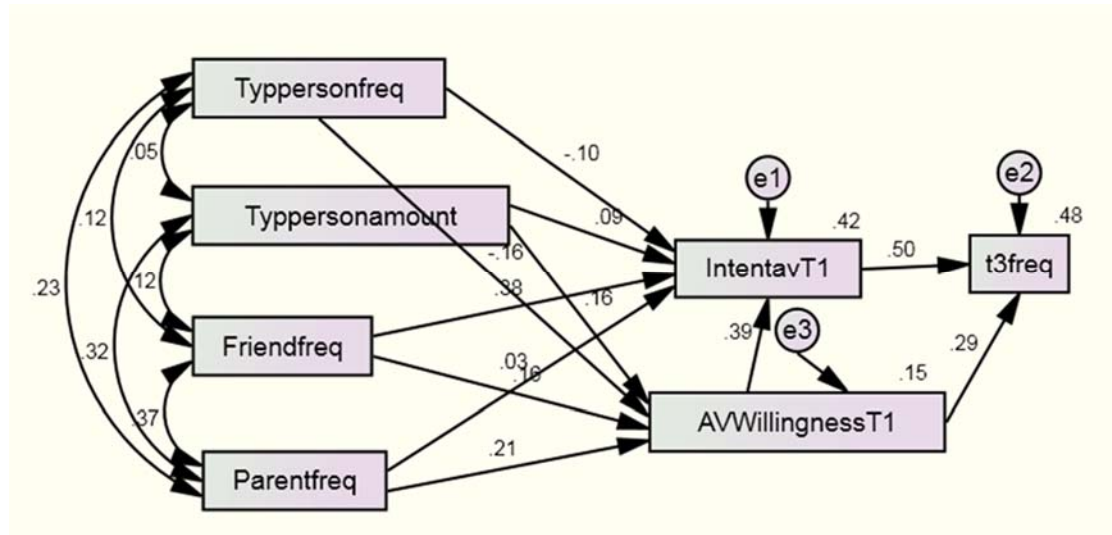


Figure 8.4 Path analysis of the social norms and intention and willingness and frequency of drinking.

The results of the analysis indicated that the model was not a good fit of the data  $X^2 = 8.721$  ( $df = 4$ ),  $TLI = .566$ ,  $CFI = .938$ ,  $RMSEA = .141$  (LO 000 – HI 271),  $AIC = 70.721$ . The paths indicated that friend behaviour significantly affected intention to drink ( $B = .378$ ,  $P < .001$ ).

#### 8.7.4 Personality Characteristics

A further analysis was conducted on the personality variables and intention and willingness to drink at Time 1 and frequency of drinking at time 3. The results of the analysis are depicted in the Figure 8.5.

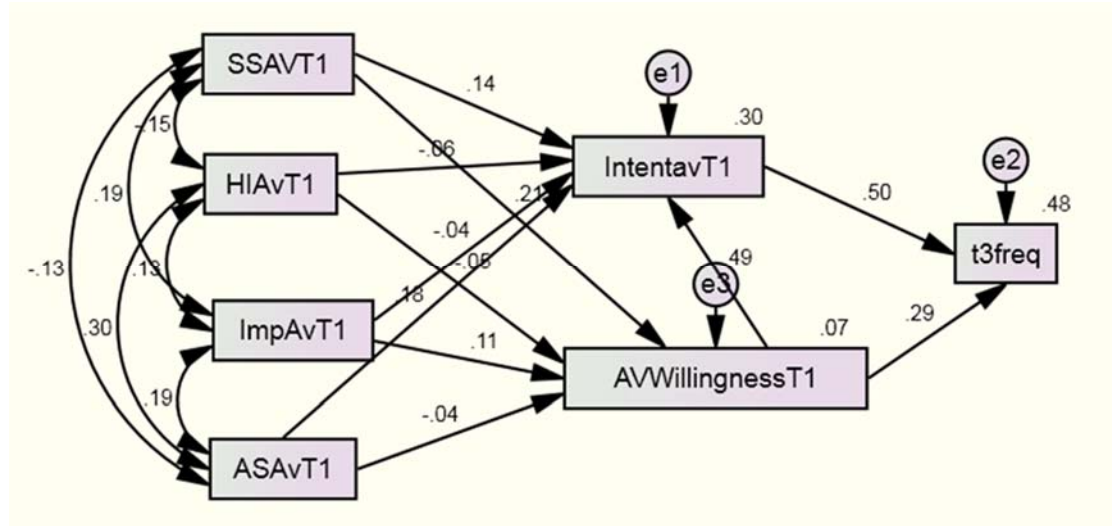


Figure 8.5 Path diagram of personality characteristics and willingness to drink and frequency of drinking.

$X^2 = 2.388$  (df = 4), TLI = 1.230, CFI = 1.000, RMSEA = 0.000 (LO 000-HI 154), AIC 64.388. These results would suggest that the model was a good fit of the data according to the RMSEA and TLI values. The paths indicated that willingness significantly affected intention ( $B = .487$ ,  $P < .001$ ), and frequency of drinking ( $B = .291$ ,  $p < .01$ ), and intention affected frequency ( $B = .499$ ,  $p < .001$ ). Although the paths between sensation seeking (SSAVT1) and impulsivity (ImpAvT1) did not reach significance they were positively related to willingness to drink alcohol, suggesting that those that scored higher in sensation seeking and impulsivity were also more likely to also be willing to drink alcohol.

A further analysis was conducted to observe the effect of adding a 2-component norm measure both injunctive (subjective norm) and descriptive norm. The results of the analysis are depicted in the path diagram, figure 8.6.

### 8.7.5 Path analysis of the TPB and Descriptive Norms

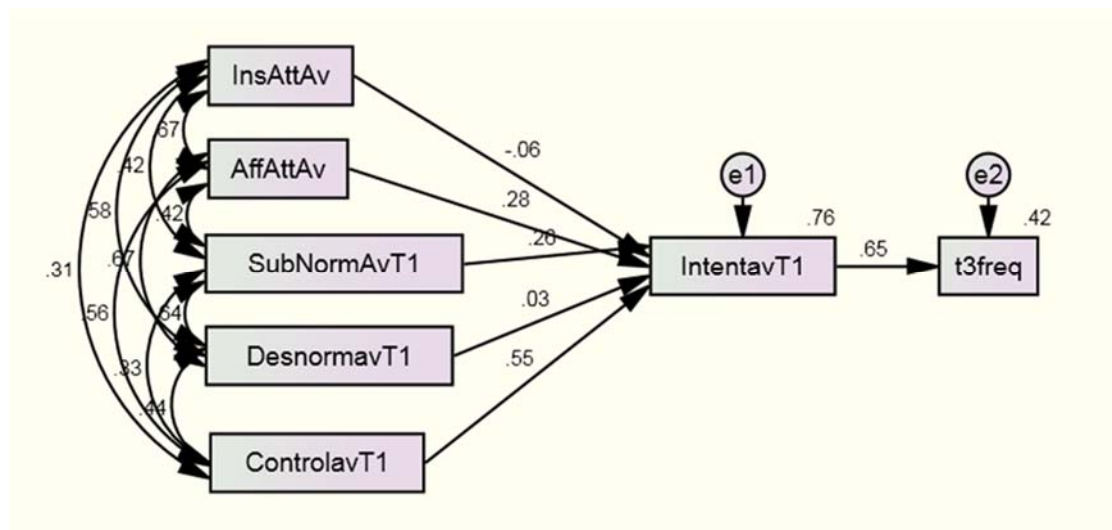


Figure 8.6: Path diagram of the 2 component normative measure TPB.

The model fit was assessed and revealed  $X^2 = 4.710$  ( $df = 5$ ),  $TLI = 1.005$ ,  $CFI = 1.000$ ,  $RMSEA = .000$  (LO000-HI .176),  $AIC = 64.710$  indicating that the model was a good fit to the data. The paths indicated that affective attitude significantly affected intention ( $B = .277$ ,  $P < .01$ ) as was subjective norm ( $B = .258$ ,  $p < .01$ ) and control ( $B = .551$ ,  $p < .001$ ). This indicated that those that considered alcohol more fun and enjoyable and considered that they had more control over their drinking behaviour and approval from others were more likely to intend to drink. However, descriptive norm in this sample did not significantly predict intention. The intention- behaviour path was however was significant ( $B = .647$ ,  $p < 0.001$ ), indicating a positive intention behaviour link in that those that scored highly in intention to drink at Time 1 were more likely to report drinking at time 3.

As perceived control has predicted behaviour in previous research (Norman, 2011), the path between control and frequency was added. The results of this further analysis are depicted in the path model in Figure 8.7.

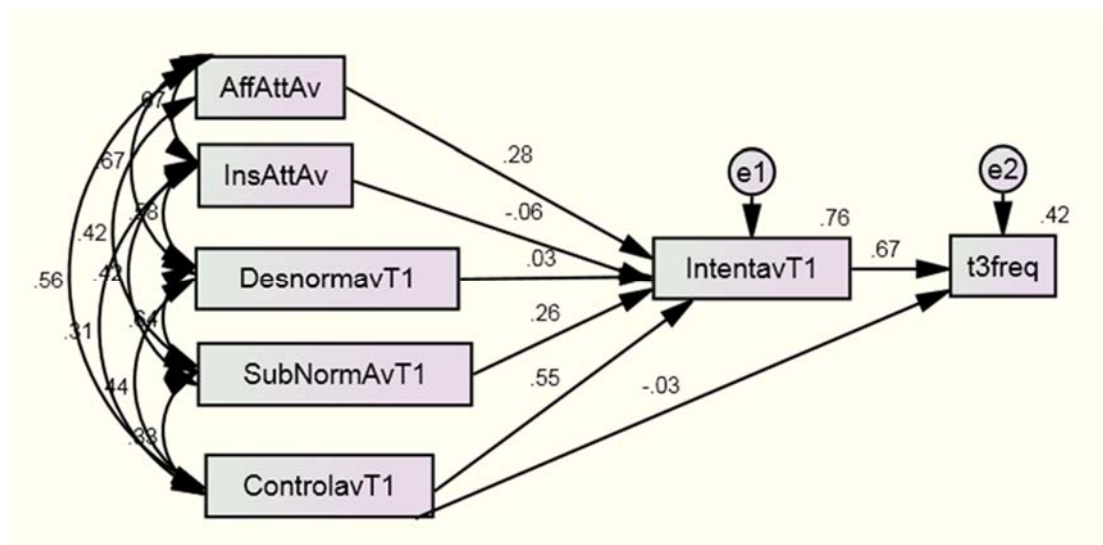


Figure 8.7: A path model to depict the relationships between the TPB variables and intention and intention and control and behaviour.

The results of the analysis indicated that the model was a good fit of the data.  $X^2 = 4.680$  ( $df = 4$ ),  $TLI = .984$ ,  $CFI = .997$ ,  $RMSEA = .054$  (LO .000 – HI .210),  $AIC = 66.680$ .

Like the previous model the paths indicated that affective attitude significantly affected intention ( $B = .277$ ,  $p < .01$ ). Subjective norm also significantly affected intention ( $B = .258$ ,  $p < .01$ ), as did perceived control ( $B = .551$ ,  $P < .001$ ). Intention also significantly affected frequency of drinking as reported at time 3 ( $B = .669$ ,  $p < .001$ ). Control on the other hand did not significantly affect frequency ( $B = -.028$ ,  $p = .863$ ).

Previous research has found mixed results relating to the perceived control and behaviour, for example Norman and Connor (2006) found a positive relationship whereas Norman (2011) found no relationship. In this sample also perceived control did not directly affect behaviour.

The results of the path analysis indicated that frequency of drinking was best predicted by intention and willingness. Although theory would indicate that intention and willingness would be the most significant pre-determinants of behaviour. It was interesting to determine which of the variables best predicted total monthly alcohol intake, therefore all of the variables from time one were entered into a forwards stepwise. This was an exploratory stepwise to see which of the variables explained most of the variance in drinking in the previous month at time 3. The results of this analysis are depicted in the table 8.23 below.



Table 8.23: To show the outcome of the stepwise analysis with predictors at time 1 and previous month's intake at time 3.

Model	<i>B</i>	<i>SEB</i>	<i>β</i>
Step 1			
(Constant)	-4.845	11.033	
Frequency	11.457	3.173	.444**
Step 2			
(Constant)	-53.401	23.753	
Frequency	10.195	3.103	.395**
Sensation Seeking	21.439	9.381	.275*
$R^2 = .20$ $\Delta R^2 = .18$ for step 1, $R^2 = .27$ , $\Delta R^2 = .24$ for step 2			
* $p < .05$ ** $p < .01$ , *** $p < .001$			

The results of this exploratory analysis indicated that at Step 1, Past behaviour explained 18% of the variance in total alcohol intake at time 3 and at Step 2, Frequency and sensation seeking explained 24% of the variance in total monthly intake at time 3.

This would suggest that actual amount of drinking was affected by how much that the participants had drunk in the past and also the personality variable of sensation seeking.

## 8.8 Discussion

The aims of the longitudinal study were to evaluate the threats to internal and external validity and to examine the relationships between the variables over a period of time. Overall, the results of the longitudinal data supported the hypothesis that there were no significant differences in the variables over time, suggesting that the measurement tool has good validity (Campbell & Stanley, 1963; Yu & Ohland, 2010). This evaluation suggest of the questionnaire indicated it to be a reliable and valid tool.

The attrition rate was high for this study with 176 students of the original participants not taking part in the time 3 questionnaire. This could be explained by the sampling procedure to some extent. The students were recruited during tutorial sessions for core units/courses. The study was explained and the students were asked to volunteer towards the end of the tutorial sessions and were invited to complete the questionnaire within the last 15 minutes of the tutorial. Anyone not wanting to volunteer was free to leave. Therefore although the link was shared on the online learning platform also, the numbers of participants were dependent on the students that attended tutorials in that particular week.

The results indicated that 26.6% of this student sample drank every week or more often, this represented 16 out of the 60 participants who took part in the study at time 1 and time 3. This suggests that this particular group was generally made up of lighter drinkers which was not consistent with previous research that suggested that 58% of their participants were consuming amounts in the previous week that would be considered hazardous (Craigs, Bewick, Gill & O'May, 2012). This may also have been due to the method of sampling.

There were significant differences between the amount of alcohol consumed in the previous week between baseline and follow-up. This suggests that weekly measures may not be an accurate reflection of an individual's 'normal' drinking behaviour. In this research example the baseline measures were taken at the beginning of the first academic year when socialisation is encouraged and alcohol is available. The monthly averages may be a more representative illustration.

Changes in the number of units consumed in the recent history are therefore not a stable measure of behaviour and should not be used as an isolated measure of behaviour change. Shots and shots with mixers were the most commonly consumed alcohol, which is consistent with the focus group studies.

The questionnaire can be considered a reliable and valid measure. The results of the reliability measures of the scales indicate that they remain reliable across time points. The relationships between the variables also indicated significant relationships indicating that the scales within the questionnaire are reliable and valid. The threats to external validity were evaluated by comparing the mean scores of the subscales across the time points. The only significant change was to the non-drinker image measure, which demonstrated a significant difference. However, caution should be exercised as the age of the participants indicate that it is reliable as a measure for student behaviour but this may not mean that it is reliable and valid in younger population. The previous focus group studies and pilot studies did indicate that there were some shared similarities between these groups (see chapter three) however, future studies with younger adolescents should include a control group.

In a review and meta-analysis Cooke, Dahda, Norman and French (2014) state that few studies have considered the TPB with an adolescent sample and that adult samples tended to have stronger associations with attitudes and perceived control and intention. However, TPB variables did also predict intention in the adolescent sample, which adds support to this being a suitable measure for intervention evaluation/design.

Relationships between the variables indicated that similarity and familiarity measures were not related to images. This may be because the descriptors used were based on previous studies (Gerrard & Gibbons, 1995, 1997). In retrospect, the relationship may have been strengthened if descriptors had been provided from members of the target population e.g. Spijkerman, van der Eijnden and Engels (2004), used the literature and interviews to construct the prototypes in their Dutch sample.

The social norms measures were related to participant's own drinking behaviour. There were significant relationships between typical peer drinking behaviours, parent drinking behaviours, friends drinking behaviours and participant drinking across both time point measures. This would suggest that normative influences are important considerations. There is a growing literature that supports that normative influences affect drinking behaviour e.g. Bosari and Carey (2001) found that perceptions of peer alcohol use were the strongest predictors of alcohol use.

In terms of intention to drink, it was positive attitudes, the approval of others, perceived control and normative measures of parent's drinking and friend's drinking behaviour that were related to intention to drink alcohol. Prior studies have tended to look at these pre-determinants in isolation as the TPB or social norms. What this demonstrates is that social factors are important in understanding motivations to drink (Brooks-Russell, Simons-Morton, Haynie, Farhat & Wang, 2014). In fact in the current study social norms explained 37% of the variance in willingness to drink.

However the regression analyses indicated that the model that best predicted intention to drink was a combination of the TPB and PWM which explained 69% of the variance in intention to drink. In terms of explaining drinking behaviour, it was past behaviour and sensation seeking that were the significant predictors of actual drinking behaviour., indicating that other factors are important in predicting drinking behaviour thus requiring a combination of models.

### **8.8.1 Limitations**

One of the limitations of this study was the lack of retention in participants over the time period. There was a large attrition rate of 179 participants. This impacted the measures that were taken and also affected the way in which the data could be analysed. The plan for data analysis was MANOVA, however there were not enough participants to perform this test and so independent t-tests were used to assess the differences between variables at time 1 (baseline) and time 3 (follow-up). The small numbers also affected the structural equation modelling, as it was

only possible to look at each of the models separately, rather than to plot the combined model as a whole.

In terms of measures, intention was measured in relation to the following week in this participant group. However, taking measures at a one week follow-up resulted in a large proportion of the initial participant sample to not take part. The questionnaire was exactly the same format across time periods as the purpose was to evaluate the threats to validity. The measures were taken one week later to capture the intention/behaviour measure. Did all of those planning to drink alcohol in the following week, drink alcohol. It may have been better to have performed a more simplified measure of behaviour in the previous week for this time period, rather than using the whole questionnaire, and more students may have chosen to take part.

Within this study, 26.6% of the remaining participants were regular drinkers (once a week or more often). This may be because recruitment took place during scheduled seminars. Although the link was available through BREO for two first year units, this may have affected recruitment of drinkers. There was a significant difference between the weekly amounts of alcohol consumed which suggests that weekly measures taken at one time period may not be an accurate conveyance of typical drinking behaviour. The variance in amount could have been due to “fresher’s” activities and the encouragement of socialisation within venues with easy availability of alcohol. It may not be the most accurate of measures in evaluating behavioural change.

The only change was for non-drinker images, which may reflect that drinking images are not stable over time. According to Gerrard, Gibbons, Houlihan et al, (2008), decision making becomes more reasoned over time which means that the willingness/behaviour relationship weakens over time (Pomeroy et al, 2008). However they maintain that prototype imagery and risk favourability of those prototypes continue to increase into early adulthood, and this is a time where there is more opportunity for risk. It is therefore difficult to ascertain why drinker images changed over time but they could have been affected by the number of participants in the follow-up compared to the baseline measures. It could also be

due to the fact that the descriptors were taken from previous research from Gerrard and Gibbons (1996, 1997) and it may have been these descriptors that affected the results. Future research should use descriptors identified from qualitative research with the target participants.

## **8.9 Chapter Summary**

This chapter has explained the results of the longitudinal study to test the questionnaire based on the combination of theories outlined in the previous chapters. The overall results indicated that the questionnaire was a reliable and valid measure over the period of time with a group of student volunteers, and would be a useful tool as a framework for intervention design and as an evaluative tool for intervention. The inclusion of social factors seemed to be important, and the novelty of the current research is that it acknowledges and includes social influences in predicting and explaining alcohol use. The next chapter explores whether computer games would be a useful social platform on which to base an adolescent alcohol intervention within the framework of the combination of the TPB, PWM, social norms and personality factors explored in the previous chapters.

## **Chapter Nine**

### **Using Games for Intervention**

#### **9.1 Overview of Chapter**

The previous chapter has described the results of a longitudinal study to examine the combination of the TPB (Ajzen, 1991), PWM (Gibbons & Gerrard, 1995, 1997), the social norms theory (Perkins & Berkowitz, 1986) and personality factors (Woicik et al., 2009) as a framework for adolescent alcohol use. This chapter is concerned with discussing the needs assessment conducted to evaluate the potential of using computer games for delivering the intervention. The chapter is concerned with study 4 which is a study aimed to gauge young people's opinions about computer games and using them as an engaging platform through which to explore adolescent alcohol use. The first part of the chapter is concerned with considering interventions in educational settings. Computer games are then considered in terms of their effectiveness in interventions. There then follows a discussion relating to a series of focus groups conducted with young people in order to gauge their opinions on what makes games engaging and their relevance in learning environments.

#### **9.2 Interventions and educational settings**

Interventions need to be easily accessed, easily disseminated and cost effective (Schinke, Schwinn & Ozanian, 2005). This is particularly relevant for schools where budget constraints may affect choice of educational resources for the PSHE (personal, social and health education) curriculum. According to the Department of Education (2013), all schools should teach PSHE. In a PSHE consultation,

following the publication of the NICE (2007) guidelines on interventions to prevent or reduce alcohol, 52% of the respondents reported the most important PSHE outcome was for the student to be able to make informed choices and recognise and manage risk and 25% felt that interventions should tackle knowledge and risks of substance misuse (Sumnall, Jones, Liskey, et. 2007). The overall consensus was that interventions should increase knowledge regarding the effects of alcohol use and sensible drinking. They should also increase decision-making skills and assertiveness in resisting peer pressure, increase self esteem and awareness of the effects of adverts (Sumnall, Jones, Liskey et al., 2007).

However, evaluations of health interventions have indicated that although knowledge may increase there is little or no effect on actual behaviour (Foxcroft & Tsertsvadze, 2012). It is therefore a challenge to produce an intervention that satisfies the needs of the PSHE curriculum but is also engaging and effective in changing behaviour. To this end serious games (games that are for purposes other than purely entertainment) are becoming a more tenable medium through which to engage young people in health related education and intervention. Games can be created as metaphors for life where game users can role-play and rehearse skills in protected environments (DeFreitas, 2006), increasing mastery and self-efficacy (Hepworth, Raney, Raney & Stum-Gottfried, 2013).

### **9.3 Game play effectiveness**

Mitchell and Savill-Smith (2004) conducted an early review of the literature regarding computer game use and found that there was some evidence for games increasing self-esteem and mastery, at least in the short term. Games have also shown some positive effects in the therapeutic environment. For example “Remission” is a “Lara Croft” type game that has been developed by the Hope Lab, USA for use with young cancer patients. The purpose of the game is to move through the body and blast cancer cells. Preliminary reports of 373 cancer patients aged between 1-29, has indicated that playing the game has increased adherence to antibiotic and chemotherapy treatments (Streisand, 2006). Games are a way of



making health related topics more enjoyable. The use of games has also been positively evaluated in health behaviour change in terms of high participation rates and increased satisfaction (e.g. Beckman, Hawley & Bishop, 2000).

The development of behaviour change games is still a relatively young discipline (Schoech, Boyas, Black, Ellias-Lambert, 2013), but there are several studies to indicate that gamification (techniques used within games to motivate and for goal achievement) can have a positive effect on health behaviour perception and learning in the adolescent population (Kahn, Duchame, Rotenberg & Gonzales-Heydrich (2013).

#### **9.4 Popularity of games**

Computer games are also a popular pastime, with young people spending increasing amounts of leisure time engaged in gaming, and the 11-14 year old age group spending the most amount of time (Homer, Hayward, Frye, Plass, 2012), on average 2 hours a day (Rideout, Foehr & Roberts, 2010). Games are also becoming more available in educational settings, with 27% of secondary teachers using games in their classrooms (Sandford, Ulicsak, Facer & Rudd, 2006). Increasingly, games are being recognised as beneficial to learning (Sherry, 2013; Bavalier, Green, Pouget & Schrater, 2012).

#### **9.5 Interventions using games**

In terms of interventions, computer game approaches have varied in their approach. Noble, Best, Sidwell and Strang (2001) used an operant learning based game with 101 participants for a drug education intervention. The game was found to have high levels of acceptability with 98% of the participants reporting enjoying the game (Noble, Best, Sidwell & Strang, 2000). There have also been on-line internet based interventions such as Wallace, Murray, McCambrigde et al's, (2011); Down Your Drink, however this seemed to have little effect on subsequent drinking behaviour.

There has also been some attempts to use CD ROM based games for example Schinke, Schwinn and Cole, (2005, 2006) found that those that played an intervention based CD ROM based on peer cluster theory, family networks theory, problem-behaviour theory, and social cognitive theory became more assertive. Each session was based around skill based objectives and problem solving where they could stop and identify problems, decide on best solutions from a list, take action and witness consequences and self praise regardless of outcome. The intervention arm scored more highly on assertion scores, but no differences were found in substance use scores (Schinke, Schwinn & Cole, 2006). There was however, positive feedback for the interactive environment. The lack of effect could be explained by the age of the participants (11) and low alcohol intake in this age group (Schinke, Schwinn & Ozanian, 2005) or by the theoretical constructs and measures. This CD ROM intervention (Schinke, Schwinn & Ozanian, 2005) was based on problem solving theory rather than behaviour change theory. The authors (Schinke, Schwinn & Ozanian, 2005) point out that it is difficult to ascertain behavioural change in this age group as they tend to fit within a pre-drinking category. Games based on the pre-determinants of behaviour may then be useful.

A recent meta-analysis of serious games in health promotion (Desmet, Van Ryckeghem, Compennolle et al, 2014) found that games have a positive, albeit small effect, with the largest effects being reported in attitudes and knowledge. The theoretical component of the games seemed to be important with those based purely on prediction of health behaviours having the lowest effect (Desmet, Van Ryckeghem, Compennolle et al, 2014)

## **9.6 Implications for future interventions**

Therefore, although there have been some attempts to utilise games to intervene in health related risk behaviours with some success in affecting substance use. There have been suggestions for motivational factors that affect game play (Malone, 1981; Malone & Lepper, 1985; Boyle, Connolly & Hainey, 2013). Serious games

seem to have an effect on learning in three ways (Desmet, Van Ryckeghem, Compennolle et al, 2014), immersion within the game, described as being absorbed within the game and creating affection for the characters and experiences that are personally relevant; flow, which refers to the concentration and skills and challenges within the game and mastery; arousal and challenge (Anetta, 2010).

Based on these assumptions, prior to considering game play as a platform for intervention in adolescent alcohol use it was important to gauge young people's opinions on what they enjoy about gaming and their views on using games within the classroom setting. Gaining a young person's perception is a good way of increasing the probability of designing an intervention that is engaging and relevant. There is a paucity of qualitative research relating to the gaming experience and the current study set out to understand games from the game players perspective and to test for the feasibility of using games for an alcohol related health intervention. Focus groups were chosen as they represent a good method for sharing ideas and perceptions in a non-threatening environment (Litosselti, 2007) and also capture social interaction within the teenage population.

## **9.7 Computer Game focus group**

### **9.7.1 Aims**

The aims of the study were:

- To explore what adolescents find most engaging and appealing about computer games.
- To gain an understanding of the relevance of interactive games to adolescents health education.

### **9.7.2 Research Question:**

Would adolescents perceive an interactive environment in the form of a computer game to be a good tool for a targeted intervention?

### **9.7.3 Participants**

There were 15 young people recruited from secondary schools and a youth organisation in the Southeast. There were four focus groups in total, made up of between three and five participants. The participants were predominantly male (n=13), and were aged between eleven and fourteen years with an average age of thirteen years.

### **9.7.4 Procedure**

Following ethical approval from the University of Bedfordshire, the schools were selected from a list of schools presented on local authority websites. In all 25 schools were approached. Five schools were chosen on the basis of their willingness to support the research, with three schools subsequently able to accommodate the study with their head teacher's approval. The adolescents initial contact with the study was through their link teacher, as it was felt that this would bring credibility to the study and reassurance to parents. Due to the involvement of the link teacher in the recruitment process it is not known how many young people were approached, but refused to take part in the study. All of the participants had parental/carer consent to take part.

Participants were also selected from a local district of an international youth organisation. The international youth organisation was selected due to the investigators involvement as a leader within the organisation with a required CRB certificate of enhanced disclosure. However, the investigator did not know any of the participants prior to the study. The groups were encouraged to talk freely but were also encouraged to talk with the five prompt questions as follows:

‘What games do you like playing?’ ‘What do you like most about these games?’ ‘What kinds of games do you play the most?’ ‘What types of things keep you interested in the game?’ ‘What thoughts do you have about using computer games to learn about health?’

The data collection ceased when saturation was reached (Bowen, 2008). The participants that volunteered to take part in the study were predominantly male and seemed to enjoy playing similar types of games. This meant that there was a lot of similarity within the groups and the content of their conversations. Attempts were made to attract non-game players and more female participants but these groups were less willing to volunteer for the computer game groups.

#### **9.7.5 Process of analysis**

The investigator transposed the focus groups, and the data was analysed using thematic analysis. The five step inductive thematic analytic approach was used to develop codes as described by Boyatzis (1998). Firstly the raw data was paraphrased to make it more manageable to compare across focus groups (Step 1). Themes were then highlighted and compared across all subsamples (Step 2), and then these were revised, reworded and revisited to find the maximum differentiation to create a simple code to categorize the themes (Step 4). The codes were then applied across the sample of data to determine their reliability (Step 5). The analysis began in actively listening to the group and the immersion in transcribing the data. The whole process of listening to the focus groups, transposing the focus groups and then analysing the focus groups indicated that there were nine main themes; action, competition, thrill, interaction, reaction, customisation, story, social norms and reward. These were then categorized into three simple codes, arousal, structure and reinforcement, although these were also interrelated. These codes and themes are represented in Figure 9.1.

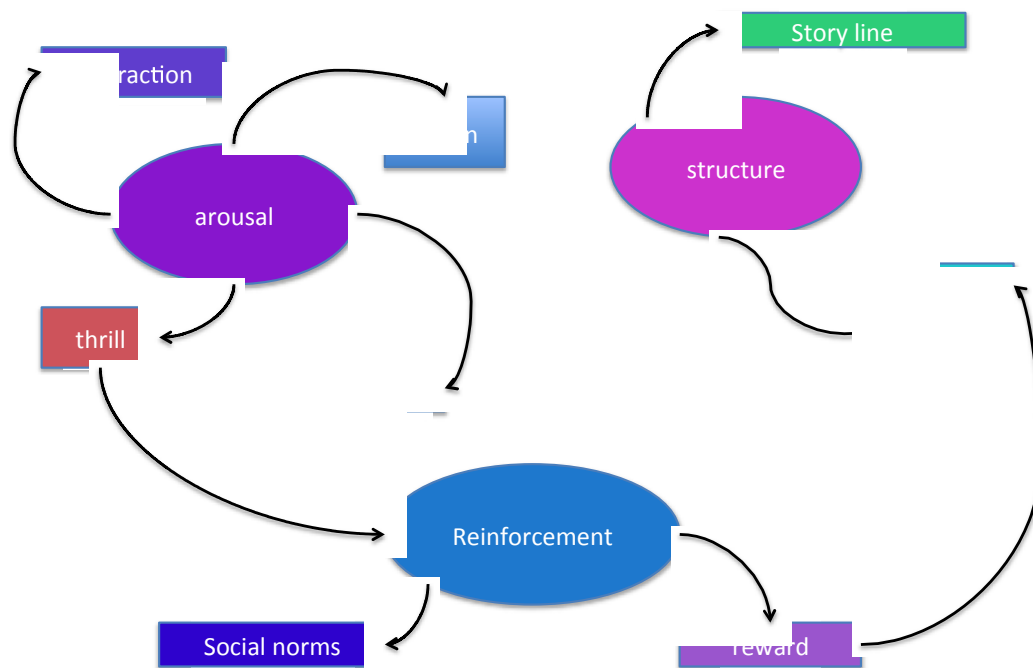


Figure 9.1 Thematic map of the computer game focus groups

## 9.8 Arousal

The code of arousal captured the themes of action, thrill, competition and interaction. The code arousal was used as this seemed to describe the emotional and physical reaction to talking about the gaming experience. Annetta (2010) talked about arousal as part of mastery of the game.

### 9.8.1 Action

In comparison to the previous alcohol focus groups, the participants in the current study were less verbose and required more prompting in the beginning. This could have been the subject matter. When asked what types of games that they enjoyed playing the majority of the participants referred to high action games, featuring military type characters. This is exemplified by the interaction between Robert (14), Felix (14) and Adrian (13).

*“Head shot, they are like thriller games” (Robert)*

*“Action, shooting” (All)*

*“Call of duty!” (Adrian)*

*“I am pretty good at racing games as well, when it comes to the shooting games it has got to be probably yah call of duty, the newest one what’s the newest one?” (Robert)*

*“6 is coming up soon but 5 is already here” (Felix)*

*“5” (Robert)*

*“My preferred game is a cross between call of duty 4 where I can go on to different levels and having cops chase me and then like blowing them up with grenades and a new game which I am playing at the moment called legend world which is where I like slicing people in half with my axe” (Felix).*

This was a group that consisted of two friends in the same school year and a further participant from a younger year group. The interaction was animated and there appeared to be some rivalry amongst them as they discussed their game playing and there may have also been an element of wanting to tell the most dramatic scene to impress each other and maybe to shock or to gauge a reaction from the investigator.

### **9.8.2 Thrill**

The thrill of the chase, shooting or obtaining victory over a game assassin was a prevalent theme and was very similar to action although this subtheme was an attempt to capture the excitement and arousal that these participants expressed when they described their gaming experiences. Robert describes the thrill in the excerpt that follows. The quote is verbatim to illustrate the manner of description and capture the verboseness of speech and excitement in description. This was typical when talking about these types of game experiences:

*“yeah, it’s the thrill of like shooting someone in the head like it’s a sense of achievement ‘cos I’m like yeah I killed someone. I am playing call of duty it is yeah! I killed someone when I am playing online on call of duty with my mates I’m just like um we have like a 2 player game round a mates house and then it’s just the whole object of the game is to shoot someone and then when you do it’s like I killed them at last and then you just get through it’s quite good”*(Robert, 14).

Robert (14) was very animated within this part of the discussion and there was a sense of the arousal that he felt when he was playing the game.

### **9.8.3 Competition**

There was also the suggestion of a competitive element regarding knowledge and power of overcoming other characters or players. This theme was very much linked with thrill and action and there was overlap between the themes. In terms of competition, they were keen to talk about times when they had outfoxed an opponent by hiding in areas that have been discovered outside of the gaming area, which demonstrated their game expertise. [They used these examples to explain these concepts to the researcher assuming that the researcher would not have the gaming experience to understand.](#) This excerpt from Robert who was the most dominant member of his particular focus group demonstrates this point:

*“Before they covered up the glitches you could go underneath the map and just jump up in a certain place and just jump over them, you could go out go the map as well so people couldn’t see you, but you could see them and they would be really puzzled and when you are under the map you can just zap ‘me”*(Robert, 14).

The competitive element was linked to the ability to play other players rather than just interacting with the game interface.



#### 9.8.4 Interaction

Interaction was also really important, with most of the participants indicating that they enjoyed playing games with or against someone else. In one session, Peter (14), said:

*“I like playing with my mates”,* with the other members of the group (John, 14, Phillip, 14 and Fran, 14), nodding in acquiescence. Fran volunteered that she felt that it was good to play with others *“because of the competition I suppose”*. Unlike the male participants, Fran was not really interested in the thrilling action games, but nevertheless highlighted an interest in interactive environments;

*“I go onto Facebook quite a lot and I like playing Wii games with my sister but they are quite boring if you don’t have anybody to play with”*.

The social interaction element seemed to be quite important but it was not necessary for the interaction to take place in the same room. Online gaming was popular as depicted by Fred (13): *“you can go online with some games and play against other people which is the best!”* Peter (14) suggested that if he was unable to play with his mates then games got *“boring after a while”*, and this represents the views of other participants.

Other components of a game that kept them interested were things like “problem solving” (Fran, 14) or the difficulty; “make it harder than you think that you are able to do” (John, 14), “competition and like levels, when you complete the level then you can move on and or like you get rewarded for achieving that level” (Fran, 14). Having to react quickly and “hand eye co-ordination” (Robert, 14) in managing characters were also suggested. Peter also suggested *“every time you play you should be able to unlock new stuff”*. Fran (14) agreed that different challenges or opportunities within the game were important: *“yeah I like games that have different opportunities within it, because sometime you play a game and you keep playing it and if you have game and keep playing it then it gets boring”* (Fran, 14).

## 9.9: Structure

Other themes seemed to be captured by the code structure and consisted of the ability to customise (customisation) and have an element of a story or a point to it (story line).

### 9.9.1: Customisation

There was also discussion around being able to personalise the gaming space, whether this was choosing weapons, vehicles, or characters for example Fran (14) felt that it “*represents who you are*”. This customization was also linked to reward with customisations a recognized level of achievement within games as Felix (14) shared within this excerpt; “ *there is a new one coming out so you can choose what perk you get when you get to a certain level, so when you get to 15 you can choose what you want, you can have recon artillery or whatever to help you*”.

### 9.9.2 Story Line

It was suggested by participants that games require some sort of story line or point to the game to prevent boredom. Peter (14) suggested that there was a requirement for: “*A kind of story line or something*”. Other suggestions for prevention of boredom ranged from “*something that everyone is involved in, so people don’t just sit there and be bored*” (Fran, 14), to problem solving within teams or team quizzes. There was a shared consensus that a story or fantasy would enhance game play and keep them interested but one of the more keener gamers pointed out: Peter (14) “ *it has to look cool and believable, not in a castle or something like that but on the streets or something like that*”.

Later when asked what they thought about using games in the classroom setting, there was a general consensus that games made the classroom experience interesting. Fred (13) did point out though that a game like that would need “*a slogan to make it sound good*”.

## **9.10 ; Reinforcement**

### **9.10.1: Reward**

The participants seemed to regard reward as an engaging impetus to keep playing a particular game. The varied from *“a points system”* (Fran 14), or *“money so that you are able to unlock things”* (Phillip, 14). Being able to change or personalise the game or to unlock different weapons seemed important to the participants e.g. *“on x box you can buy outfits for your avatars you can even get an alien, I am more interested in the points at the moment but if not I would get it because it looks really good”* (Robert, 14). There may be differences between males and females in the way that points or rewards can be exchanged for customised goods, but both agreed that being able to get things added to the gaming experience, for Fran though this would be having a home environment e.g. *“having a home would be good because you could have a shop with kind of like homey stuff “*, (Fran, 14). Although, the males seemed to talk about points for weaponry more than the look of the environment there seemed to be some agreement over a desire for change; exemplified by this comment from Philip (14) *“yeah kind of like to be able to get things to change it”*.

### **9.10.2 Social Norms**

The types of games that were played seemed to be what groups of friends were playing, or what was seen as being the game or type of game to be playing e.g. Fred (13) talked about online games *“you can go online with some games and play against other people which is the best, but I don’t really play those games because they are 15+”*. In the group, which was made up of friends and a younger lad from a different year group (Robert, 14, Felix, 14 and Adrian, 13), the following conversation is illustrative over the influence of other gamers:

Adrian (13), started by saying *“what about Runescape?”*, to which Felix replies: *“I used to play that when I was 8”*, Robert joins in at this point in support of Felix

and says “*people still have it though and that’s quite sad*”. Adrian then seems to join in with the older boys opinion and says: “ *the graphics are really bad*”.

### 9.11 Discussion

The participants were predominantly boys, which could be an indication that boys are more interested in or attracted to participate in talking about computer games. This may have been why the predominant themes were concerned with arousal and the thrill and competition. The way the themes were identified was distinct to the participants that were talking. There were clearer indices from the participants in what they favoured or did not and they seemed to create the themes for themselves in their discussion structure.

It is difficult to draw a comparison but there was a difference between how Fran responded to what games she enjoyed playing as compared to the male participants. Fran’s contribution highlighted that games for education need to incorporate aspects that will appeal to both frequent and non-frequent gamers. The male participants predominantly talked about action and shooting games, online gaming against other people and blood. Fran, in comparison, talked about quizzes, storylines and networking with friends. The male participants were less sure that a game intervention would be as engaging as the shooting games that they enjoyed playing in their free time. They indicated that the challenge would be to motivate young people to play it more than once. Their suggestion for engagement was that the game should contain games within games for example Robert (14) said a “*shoot the bottle*” alley to obtain rewards. Fran (14) suggested that providing a “*home environment*” that could be customised would maybe be appealing to other non-frequent game players. [This would support literature that suggests that motivational rewards are important in game play \(King et al, 2013\).](#)

The strength of the focus groups were that they enabled a deeper appreciation of the motivational aspects of game play and for continued engagement within the target age range for an adolescent alcohol intervention. There were potential limitations to this study that need to be considered.

As Bourke (2014) points out, the researcher is the research instrument and by their very nature subjective in the collection and interpretation of data. It is acknowledged that having an understanding of previous literature about gaming may have influenced the choice of codes and have made the themes more salient.

Although as a naïve gamer I didn't really have any understanding of the games that were being discussed. Reflecting on this afterwards this meant that the young people tended to explain and expand on what they meant to help me to understand. I took a number of steps to try and check understanding and reassure them of my attention to the narratives by reflecting back summaries to the participants. As I moved through the process I tried to reflect on my position and my own contribution to the group. I tried to be careful not to show emotion about the games that included violence for example.

It was in this group that I was challenged on my position and why I was interested in games. When I explained that I was interested in whether games could be used to engage young people in thinking about their health the response was one of surprise and the sentiment that it would be a huge challenge to include elements that would interest both gamers and non-gamers.

Although the participant group could be argued to be non-representative of the participant pool, this is the nature of qualitative research. The focus groups were a snapshot taken from a small group of participants to help understand what was enjoyable about computer games.

There were fewer participants for the focus groups in this study as there was less variation in discussion across age groups. Data collection ceased when it became apparent that the groups were all saying similar things, however, the data collection would have benefitted from more females taking part. In this present study the volunteers tended to be young males who played games and were interested in talking about games, and although this resulted in rich data, it would have been beneficial to conduct some more purposeful sampling to attract females and non-gamers.

This could have perhaps been achieved by using broadening the topic to incorporate using computer games within classroom learning. This may have attracted the females as well as other non-gaming males.

Gender differences in the interest in playing games and the difference in amounts of time spent playing games has been highlighted by Hainey, Connolly, Stansfield and Boyle, (2011) who found that girls spent significantly less time playing games.

The themes that were identified support previous research in the area relating to motivational aspects of game play. According to Malone, (1981), the characteristics of educational and motivating environments are challenge, fantasy, curiosity (arousal and satisfaction), structure and choice. These early indications from Malone, (1981) are also supported in a three wave survey study conducted by Hainey, Connolly and Boyle (2011) and are represented by the sample of participants in the current study, when they talked about the challenge and thrill of playing games. Malone & Lepper (1987), also constructed taxonomy of the intrinsic factors of motivational game play and suggested that co-operation and competition were also important factors. These themes were also identified in the current study with participants talking about competition and playing with others. These motivating factors have increasingly encouraged the development of games to assist learning in supporting autonomous decisions through game play (Boyle, Connelly & Hainey, 2011) and active learning, that is individually constructed by the player (Savery & Duffy, 1995). Computer games also offer the opportunity for prolonged play, and may be used outside of the classroom environment, which may increase the likelihood of intervention effectiveness. Repeated rehearsal of scenarios enables mastery over situations.

Boyle et al, (2011) argues that it is psychology, which offers the link between computing, cognition and the social sciences. Apart from studying the negative impacts of playing violent video games and subsequent aggression (Anderson & Bushman, 2013), and game addiction (Kuss, 2013; Spekman, Konijn, Roelofsma & Griffiths, 2013), psychologists have studied the positive impacts such as increasing leisure activities, positive mental health, increases in engagement with

school and family and a more favourable self concept (Durkin & Barber, 2002). Therefore psychology could be considered to be valuable in game design and in fact Blumberg, Blades and Oates, (2013) suggest that game design should involve experts such as psychologists and be based on research to maximise the learning opportunities within the game.

DeSmet, Van Ryckeghem, Compermolle et al (2014) stated that the results of their meta-analysis indicated that it was not always clear how the theoretical models were incorporated into the game design. They propose that more detail is required such as the intervention mapping approach (Bartholomew, Parcel & Kok, 2006).

The proposed game framework is shown in Figure 9.2 The scenarios are based on the framework outlined in the previous chapter with additional hypothetical extras of games within games e.g. shooting the bottle game to encourage interaction and competition. There are also opportunities to provide education to fit within the requirements of the PSHE curriculum. A gaming environment offers interaction between the gamer and the gaming interface (Ritterfield, Shen, Wang, Nocera & Wong, 2009), however, they can also offer interaction between players that may be more representative of social normative influences. Including a social influence approach in a game taught students to resist drugs through resistance skills training, education and normative education (Botvin, 2000). This is consistent with social identity theory and the hypothetical 'social cure' (Haslam, Jetten & Haslam, 2012).

However, in a systematic review, Rodriguez, Teeson and Newton (2014), found only eight games related to alcohol and drug use, which consisted of four online, three CD ROM and 3D display. Only one was outside of the USA and only two were randomized controlled trials, which indicate that this is still an area for more robust methodology and fidelity. Social games seem to be effective for alcohol and drug use in terms of knowledge but not evaluated more than once and behavioural measures were not included (Rodriguez et al., 2014). Therefore more rigorous evaluation and transparency is required. The questionnaire within the current programme allows for more rigorous testing. However, in order to

increase transparency and include the antecedents to behaviour change and appropriate change techniques an intervention mapping procedure is required (Schoech et al., 2013).

### **9.12: Chapter Summary**

This chapter has introduced the idea of using computer games as a PSHE intervention. Previous research in the area has suggested that games are being increasingly used in education, and are being recognised as being beneficial to learning. Previous attempts at game style interventions in alcohol use have demonstrated success in increasing self esteem, and assertion but have not demonstrated changes in behavioural outcomes. This may be due to the lack of interaction with peers within the game or the focus on the educational element. Therefore the current study was a series of focus groups to explore the elements that adolescents find engaging and enjoyable within games and how feasible it would be to construct a multifaceted gaming environment to prevent alcohol misuse.

Overall, the focus group study analyses indicated that a computer game intervention would be an enjoyable, engaging method for an alcohol intervention. The themes identified; action, competition, thrill, interaction, reaction, customisation, story, social norms and reward, were driven by the participants and they also made suggestions on how to maintain engagement beyond a single game play. A conceptual model of the computer game is shown in Figure 9.2. The next chapter is concerned with developing the conceptual ideas into an intervention design based upon the taxonomy approach to behaviour change and the theoretical model proposed in the previous chapters.



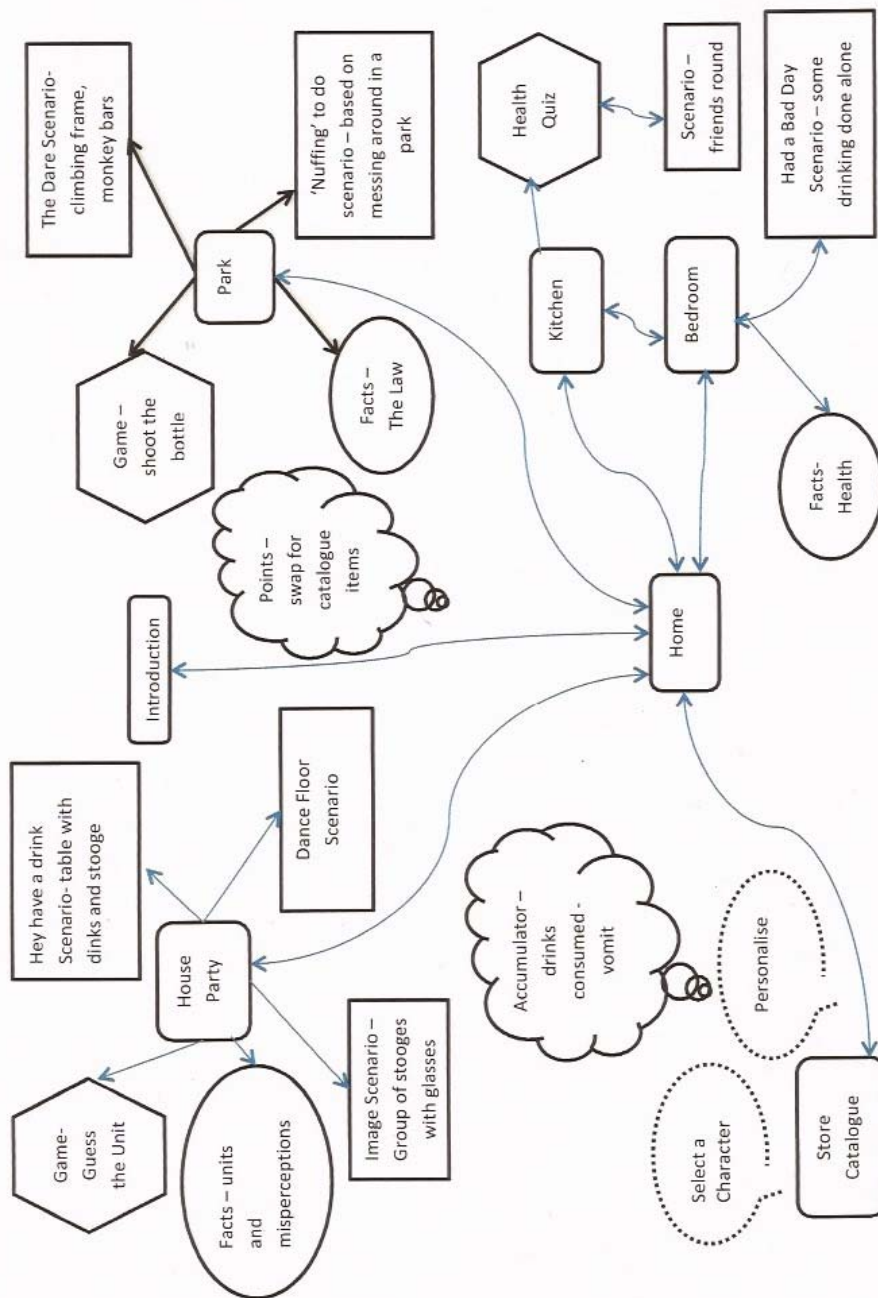


Figure 9.2: Conceptual map of 'XS' Computer Game

## **Chapter Ten**

### **Intervention Design**

#### **10.1 Chapter Overview**

The previous chapter discussed using computer games as an interactive intervention tool in an alcohol prevention strategy for the PSHE curriculum. This chapter is concerned with intervention design and transferring concepts into a deliverable intervention to prevent alcohol use in adolescents. The chapter begins with identifying the need for transparency and rigorous reporting of intervention strategies, and then goes on to discuss taxonomies and behaviour change techniques. Attention is then given to the intervention mapping processes and the theoretical framework and how this is used to formulate the intervention. Finally, the chapter introduces role-play as a primary step intervention to investigate scenarios that could be used within a computer game intervention. The effectiveness of drama-based interventions is considered and the rationale for a role-play intervention as a way of evaluating potential interactive scenarios and environments that could be later transferred into a game setting.

#### **10.2 The CONSORT guidelines and transparency**

There is an increasing need for rigorous transparency in intervention design to enable replication and evaluation of behaviour change techniques (Abraham & Michie, 2008). Historically, there has not been a standardized way of reporting intervention methods, which has resulted in ambiguity of the effective components and difficulty in replicating successes (Abraham & Michie, 2008). The CONSORT guidelines (Moher, Shultz, Altman et al, 2001; Shultz, Altman, Moher et al., 2010) have been written specifically for medical randomized controlled trials but offer a rigorous method that could provide a good standard

practice in intervention design (see Chapter 2, Section 2.13 for a more detailed explanation). The guidelines specify that intervention design should provide precise details of the techniques that have been used. There has been a recent shift within Health Psychology for improved rigour in reporting and towards classification of the specific behaviour change techniques within behaviour change interventions (Michie & Abraham, 2004; Abraham & Michie, 2008).

### **10.3 Taxonomies for Behaviour Change**

Interventions in health related behaviour tend to be complex, with many components, which can result in difficulties in identifying the active ingredients (Michie, Fixen, Grimshaw, Eccles, 2009; Dombrowski, Sniehotta, Avenell, & Coyne, 2007; Montgomery, Grant, Hopewell, Macdonald, Moher & Mayo-Wilson, 2013). It has therefore been proposed that standardised definitions are required to enable more scientific reporting of interventions and more readily identifiable techniques that are effective in behaviour change (Michie, Ashford, Sniehotta, et al, 2011). Accordingly, taxonomies of behaviour change techniques offer a reliable intervention resource. Abraham and Michie (2008) conducted a systematic review of the behaviour change literature and identified 26 BCT's. More recently, Michie, Johnston, Abraham et al., (2013) compiled the BCT's (v1), which consisted of a total of 93 hierarchically clustered behaviour change techniques to create consensus in reporting. There has also been an attempt to provide behaviour specific taxonomies e.g. CALO-RE; a behaviour change taxonomy for physical activity and healthy eating behaviours (Michie, Ashford, Sniehotta et al., 2011).

At the current time there are no known taxonomies of behaviour change techniques that apply to adolescent risk behaviour, however there is a taxonomy based on the reduction of excessive drinking in brief interventions (Michie, Whittington, Hamoudi, Zarnani, Tober & West, 2012). This taxonomy for alcohol related behaviour was created from the scrutiny of previous interventions and manuals (Michie, Whittington, Hamoudi, et al., 2012). These behaviour

change techniques are clustered under the headings of motivation, self-regulation, promoting concurrent activities and considering the interaction. Therefore in order to comply with CONSORT guidelines of clarity within intervention techniques, the behaviour change techniques taken from the brief alcohol intervention taxonomy were identified and incorporated within the framework of the intervention design (see section 11.7).

## **10.4 The Intervention Mapping Approach**

As previously described in Chapter 3 the Intervention Mapping Approach (Bartholomew, Parcel, Kok & Gottlieb, 2006), is a framework for designing health related programmes for health promotion or for changing health related behaviour (Bartholomew, Parcel, Kok & Gottlieb, 2006). The intervention mapping process involves 6 stages; step 1 in the process is the assessment of needs, step 2, is the formation of the change matrices, step 3, developing theory based strategies, step 4 program (design), step 5 implementation plan and step 6, evaluation. How these six steps have been followed in the current study is detailed below.

### **10.4.1 Needs Assessment**

The needs assessment involves an evaluation of the problem in terms of determinants of behaviour and environmental determinants (Bartholomew et al, 2006); in the current study these are the variables within the combined model and environments for drinking and influences of others. The needs assessment in the current research programme involved the alcohol focus group study and the literature search. These processes supported the combination of the TPB (Ajzen, 1991), PWM (Gibbons & Gerrard, 1995, 1997), The Social Norms approach (Perkins & Berkowitz, 1986) and sensation seeking and impulsivity (Conrod et al, 2006). The next stage of the process was to formulate the change matrices.

### 10.4.2 Matrices of Change

The matrices of change were constructed based on the determinants of behaviour from the combined model and the behaviour change techniques taken from the alcohol use taxonomy (Michie, Whittington, Hamoudi, et al., 2012). This involved selecting appropriate theory based intervention methods and translating them into a programme for health behaviour change. These determinants represented a complex interrelationship between personal factors such as identity and personality indicators and social influences.

### 10.4.3 Change Objectives

Firstly the change objectives were outlined (see table 10.1). These were the pre-determinants of alcohol behaviour from the combined theories: attitude, subjective norm, perceived behavioural control and intention (TPB, Ajzen, 1991), drinker images, willingness, (PWM, Gibbons & Gerrard, 1995, 1997), and descriptive norms (Perkins & Berkowitz, 1986).

Table 10.1: Change objectives for an interactive adolescent alcohol intervention

Determinants	Change Objectives	Outcomes
Attitude	To adjust positive attitudes towards delaying onset of drinking and drinking in moderation.	Positive attitudes towards abstaining from alcohol and reduction in alcohol consumption.
Subjective Norm	To change normative beliefs to approval of non-drinking.	That significant others will approve of non-drinking.
Perceived Control	To increase self-efficacy and perceived control over alcohol situations.	To feel confident in saying no to alcohol (whether this is no not at all, or no more thanks) or

		in avoiding alcohol situations and a reduction in alcohol consumption.
Drinker Images	To increase positive non-drinker images.	Non-drinkers will be perceived more positively.
Willingness	To increase refusal skills by action planning and rehearsal.	To refuse alcohol in a social situation and a reduction in frequency and amount of alcohol consumed.
Descriptive Norms	To give feedback about peer drinking norms to challenge misperceptions	To be able to accurately assess peer drinking behaviour.
Intention	To increase intention to not drink or to drink less.	To reduce intention to drink and to reduce the frequency and amount of drinking.

#### 10.4.3.1. Strategies for change objectives - Attitudes

Attitudes are formed based on the expectancies and the evaluation of the outcomes of a given behaviour (Ajzen, 1991; Conner & Sparks, 2005). Based on the current research and previous research that positive attitudes are associated with intention (Armitage & Conner, 2001; Goden & Kok, 1996) to drink alcohol (Leigh & Stacy, 1993; McEachan, Conner & Lawton, 2011), one of the primary change objectives was to challenge these positive attitudes. Attitudes can be formed through social learning and conditioning and therefore change may be achieved through modelling and rewarding positive behaviour, based on social learning theory (Bandura, 1977, 1986). Change may also be achieved through targeting the outcome expectancy (Schwarzer, 2001; Fromme & D'Amico, 2000;

Wiers, de Jong, Havermans & Jelicic, 2004), or evaluation of the less positive effects of the behaviour. Positive reframing (Tversky & Kahneman, 1981) is a possible method that could be adopted to achieve this for example people who do not drink or drink in moderate amounts are less likely to suffer unpleasant side effects of drinking or to take risk. This has been a successful method with healthy eating (Bannon & Shwartz, 2006).

#### **10.4.3.2 Social Norms**

The subjective norm relates to the approval of significant others (Ajzen, 1991), t descriptive norms on the other hand relates to the behaviour of close friends (Rivis, Sheeran & Armitage, 2006; Rhodes & Courneya, 2003). According to Sus and Wheeler, (2000) social comparison is related to feeling right which is achieved by checking things out with others and to feel accepted by joining with particular behaviours. There is evidence that these social comparisons can result in misperceptions of normative behaviour (e.g. Lewis & Neighbors, 2006 see Chapter 2 for a more detailed description). Bartholomew et al., (2006) maintain that normative beliefs can be influenced through making peer expectations transparent (e.g. Lewis & Neighbors, 2006; Schulte, Monreal, Kia-Keating & Brown, 2010), and build resistance to social pressure by increasing motivations towards a more positive social pressure or by increasing self efficacy. Perceived control has been suggested to be interchangeable with self-efficacy (Ajzen, 1991). Increasing self-efficacy and control can be achieved through rehearsal of refusal skills (e.g. Maibach & Flora, 1993).

#### **10.4.3.3 Prototype Images**

Prototype drinker images (PWM, Gibbons & Gerrard, 1995, 1997) refer to the images that an individual may hold relating to drinkers and non-drinkers. Research within this area has identified that positive drinker images are linked with a greater willingness to drink and non-drinker images have an inhibitory

effect on consumption (Gerrard, Gibbons, Reis-Bergan , et al., 2002). Therefore, fostering more positive non-drinker images through giving feedback relating to older peers and other's behaviour may be an effective strategy.

#### **10.4.3.4. Intention and Willingness**

The final pre-determinants to be considered are intention and willingness. Implementation intentions (Gollwitzer, 1999) have been proposed as an effective method strengthening intention not to drink and to tackle behavioural willingness. Implementation intentions are often referred to as “if-then planning” (Gollwitzer & Sheeran, 2006). Implementation intentions or “if-then planning” consists of formulating plans if encountering certain situations e.g. if I encounter this situation, then I will initiate this behaviour to reach my goal. This if-then planning has been found to be successful in reducing the likelihood of accepting a drink that is offered (e.g. Chatzisarantis & Hagger, 2010)

If then plans link situational cues to responses that are appropriate to attaining goals or more desirable outcomes. These are formed to bridge the intention-behaviour gap. These plans form mental links that relate to the anticipated or mental representation of a situation and also the intended behaviour. These mental representations makes the if-then plan more accessible and therefore highly accessible in a situation Gollwitzer, 1999; Gollwitzer, Bayer & McCulloch, 2005; Gollwitzer & Sheeran, 2006; Webb & Sheeran, 2004)



## 10.5 Matrix of Performance Objectives

Table 10.2 Matrix of change

	Personal Determinants								External Determinants	
Performance Objectives	Knowledge	Attitude	Subjective norm	Perceived control	Intention	Descriptive norm	Images	Willingness	Environmental Cues	Reinforcement
1. To resist social pressures to drink alcohol	Identify pressures that there are to drink.	Expect there to be negative consequences to drinking.	Appraise other's drinking.	Express confidence in refusal.		Explain that others may not be drinking, as they are perceived to be.	Appraise images of non-drinkers more positively.	Express ability to refuse alcohol.	Avoid situations of risk by rehearsing a get out plan.	Appraise success.
2. To enjoy social activities without alcohol	Appraise other activities.	Value social activities without alcohol.		Express confidence in taking part in other activities	Action planning to not drink	Recognise that friends and peers are engaging in activities without alcohol.	Appraise active non-drinker images positively.		To immerse in activities that are alcohol free such as sport or youth groups.	Appraise enjoyment
3. To enter an alcohol related environment and not drink alcohol or drink sensibly.	Appraise situations and recognise risk. Identifying saying no as a possible response.	Expect there to be positive consequences to avoiding alcohol.	Explain that older peers and significant others say no to drinking when they want to be with friends but not drink.	Express confidence in entering an environment and saying no or avoiding drinking alcohol.	Action plan to have an alternative to alcohol or to limit intake.			Be able to refuse alcohol through the practice of refusal.	Recognise cues to drinking and rehearse avoidance techniques.	Evaluate the benefits of success. Reward through self-praise (reward points in a game)
4. To monitor own drinking and drink less than 5 units on any single occasion	Understand the benefits of monitoring drinking and drinking within the recommended limits	Evaluate the benefits of drinking in moderation and the consequences of drinking too much.		Confidence in ability to monitor drinking.						Evaluate benefits and success.

These performance objectives were summarised in a matrix of performance objectives, which also included the taxonomy of behaviour change techniques for alcohol and are shown in Table 10.2.

### **10.6 Environments for Scenario Setting**

The environments in which young people are engaged in drinking were described in the focus groups as the “home”, outside spaces such as “parks” and “house parties”. Therefore, it was decided to use these environments to develop scenarios that could be used in an interactive intervention. The scenarios were written around the environments based on the behaviour change matrix, which are described in section 10.5.

### **10.7 Behaviour Change Techniques**

The taxonomy of behaviour change techniques for alcohol use specify that the techniques used to target motivations are; providing information about the consequences of the behaviour, boost motivation and self-efficacy, provide normative information about other’s behaviour and experiences and provide rewards. The techniques for self-regulation were described as; facilitating goal setting, facilitating action planning, provide advice on how to avoid social cues, and the prompting of self-recording (Michie, Whittington, Hamoudi, et al., 2012). The behaviour change techniques were selected for their suitability for the intervention design. These were considered to be the motivations for alcohol use and self-regulation. The rationale for choosing these were that these could be targeted using a universal approach and the primary function of the intervention was to delay onset in non-drinkers and prevent misuse within drinkers.

### **10.7.1 Motivational Behaviour Change Techniques**

The motivations for alcohol use behaviour change techniques that were chosen were the provision of information about the consequences of drinking (to target attitudes), boosting motivation and perceived control (perceived control and self-efficacy), providing normative feedback of friend's and peer alcohol use (drinker images and peer influences), and providing rewards (social learning).

### **10.7.2 Self -Regulatory Behaviour Change Techniques**

The self-regulatory BCTs that were selected were facilitating goal and action planning (refusal techniques), and the provision of advice on how to avoid social cues (action planning) and the prompting of self-reporting (Michie, Whittington, Hamoudi, et al., 2012).

## **10.8 Role Play**

In order to evaluate the scenarios in an interactive setting prior to inclusion into a game type environment, role-play scenarios were devised based on the behaviour change matrix (see figure 11.1). The purpose of using an interactive role-play method was twofold, to capture the social influences of drinking, and to model scenarios that could be used to model the computer game.

### **10.8.1 Rationale for Role-Play**

There have been a number of reports that have indicated the effectiveness of using interactive methods in terms of satisfaction (e.g. Grey, Boland, Davidson, Li & Tamborlane, 2000; Guevera, Wolf & Grum, 2003). Role-play is an interactive method that allows learning to take place through the interrelationship between reality and fantasy and can offer the rehearsal of everyday life (Heikkinen, 2002, cited in Joronen, Rankin & Åstedt-Kurki, 2008). Joronen et al, (2008) conducted a

review of the literature on drama based learning and found that short-term drama or theatre plays had positive outcomes in terms of attitudes and knowledge towards health related behaviours. There was a significant effect on reducing smoking in girls (Thrush, Five-Schaw, & Breakwell, 1999) and positive food choices (Perry, Komro, Dudovitz et al, 1999).

## **10.9 The Role Play Scenarios**

The role-play scenarios were based upon environments that the participants in the previous focus group study had identified as potential drinking environments. These were “A Park” to represent an outdoor space, “Home” to represent the home environment and “The Party” to represent a house party. Each of the role-plays included prompts that targeted particular cognitions or influences to drink, based on the matrices of pre-determinants of the drinking behaviour outlined in the matrices of change. They also included the techniques for behaviour change relating to motivations for alcohol use and self –regulation outlined as Michie et al., (2012).

### **10.9.1 House Party**

The house party scenario was devised to target the motivational factors of providing information about norms and other’s experiences and behaviours and the self-regulatory BCTs of facilitating goal setting (Michie, et al. 2012). These BCT’s were incorporated into each of the scenarios and were targeted through the planned interactions within the scenario and the discussions beforehand in sharing out the roles and talking about how to characterise the role-play. The scenario is set out below for illustrative purposes but the actual role-play cards were bright and colourful (see appendix H).

#### **10.9.1.1 House Party Scenario (Year 7)**

This scenario is set at a house party. Sometimes you may be invited to parties in people's houses. This is a common environment for young people to encounter alcohol. The purpose of this scenario is to work through what you may/could say if this happened to you (BCT – facilitate action planning using Gollwitzer's (1999) If...then method)

One person will play the newcomer to the party, one/two people will be at a table with drinks (including alcohol) on and the others will be in a group talking and laughing together.

*Newcomer – imagine that you have just entered the party. You have spotted a group that you know chatting on the other side of the room. As you approach the people at the table offer you a drink.*

People at the drinks table – offer the newcomer a drink, tell him everyone is drinking. (Determinants of behaviour: willingness; peer norms)

*Newcomer – look over to the people laughing and talking, some are holding glasses. What would you do? You could say that you want to say hi to everyone first and move away (BCT – facilitate action planning)*

People in the group, laugh, joke, have a good time. When the newcomer comes over, greet him. Ask him if he wants a coke or something (BCT – provide normative information, that they are drinking coke not as previously assumed alcohol)

#### **10.9.1.2 House Party Scenario (Year 9)**

This scenario is set at a house party. Sometimes you may be invited to parties in people's houses. This is a common environment for young people to encounter alcohol. The purpose of this scenario is to work through what you may/could say if this happened to you.

One/Two people could play the parts of new arrivals to the party.

One/Two could be stood at the drinks table.

A group could be talking/laughing together. This group could hold imaginary drinks.

Newcomers, imagine that you have arrived. What might you do? You might look around the room to find people you know. You might notice them having a good time and holding drinks (Determinant - descriptive norm). You might assume that people are drinking alcohol when you approach the drinks table, but this might not be accurate.

If you are offered a drink what might you say? (Determinant - Behavioural willingness; BCT – If-then planning) What would your friends think? (Determinants -descriptive norms, peer influence, attitudes, perceived control; BCT – provide normative feedback) What would your parent's say? (Determinant - subjective norm; BCT – provide normative feedback) What could you say to enable you to look cool but not drink alcohol? (Determinant - drinker image; BCT – facilitate goal setting)

### **10.9.2 Home**

The home scenario was based around the focus group discussions in which the home was described a safe drinking environment that was provided by parents. The determinants of behaviour that were targeted in this scenario were attitudes, drinker images, subjective norm, and behavioural willingness. The BCTs used in this scenario were facilitating action planning and motivational factors of providing normative information about other's experiences or behaviours. The scenario encourages the rehearsal of if...then planning (Gollwitzer, 1999) and encourages discussion relating to drinker images.

### **10.9.2.1 Home Scenario**

This scenario is based around the home. Sometimes young people such as yourselves may get together round someone's house and have sleepovers. This may be a time when some people may drink alcohol. Imagine that you are all sat listening to music, checking phones/Facebook, talking and laughing together. One of the group members should play the part of the person who suggests the alcohol. What would your reaction be? (Determinants – attitudes and prototype images; BCT – goal setting and action planning).

You may be willing to try some? (Determinant - behavioural willingness; BCT – facilitate action planning e.g. if-then planning)

You may worry that your parent's carer's would disapprove? (Determinant - subjective norm)

You may think that it is cool (Determinants – attitude and prototype image).

Try acting out some of the reactions with the rest of the group.

How could you refuse without feeling left out of the group? (BCT – Facilitate action planning e.g. If-then planning)

Practice some ways of saying no (BCT – facilitate action planning with rehearsal of if –then planning)

### **10.9. 4 Outside Space**

The Park scenario was based around the use of outside spaces as drinking environments. In the focus groups these were seen as places that risky drinkers would hang out (see chapter 3). As they are perceived to be risky drinking environments this may make this scenario more interesting to those that are higher in sensation seeking and impulsivity. The pre-determinants of behaviour that were targeted in this scenario were alcohol images and behavioural willingness, subjective norm, attitudes and peer norms. The BCTs that were utilised were

providing information about other's experiences and giving normative feedback, and self-regulatory BCTs of action planning.

#### **10.9.4.1 The Park Scenario**

This scenario is based around friends meeting in outside spaces such as parks. This may be somewhere where young people experiment with alcohol, even though the police can confiscate it and tell parents/carers.

Imagine that there are a group of you at a park, hanging out together, (Determinant- descriptive norm). Someone pulls out a bottle of water that he/she claims has alcohol in it and offers it around in an encouraging way e.g. go on try it (Determinant - prototype images/behavioural willingness).

At this point break off into smaller groups;

Two people could discuss whether their parents/carers would approve (Determinant - subjective norm)

Two people could discuss whether there is alcohol in the bottle or not, and what they think about alcohol (Determinants - attitude, peer norms; BCT – providing normative information)

Another small group could discuss what they might do. Take it and try it? Or say no? (Behavioural willingness; if then planning)

Come back together as a larger group and the person will tempt you all again. What will you do? (BCT – goal setting and action planning).

#### **10.9.5 Evaluation**

As role-plays tend to be evolutionary in nature, effective evaluation of them is required. According to Glasgow, Bull, Gillette, et al., (2002) evaluation of an intervention should be based around RE-AIM, which is an acronym for reach,



effectiveness, adoption, implementation and maintenance. Therefore a pilot study was proposed to evaluate the implementation and effectiveness in terms of the behaviour change techniques that were employed and engagement/adoption of the task.

### **10.10 Chapter Summary**

This chapter has been concerned with explaining the methods and theoretical grounding for the intervention design. The intervention mapping technique was described and the processes by which the behavioural objectives were reached and the behavioural matrices constructed. These were based on the theoretical determinants of behaviour of the combined model of the Theory of Planned Behaviour (Ajzen, 1991), The Prototype Willingness Model, (1995, 1997), and The Social Norms Theory (Perkins & Berkowitz, 1986) that was discussed in chapter 3, and the Taxonomy of Behaviour Change Techniques for alcohol use (Michie, Whittington, Hamoudi, et al., 2012).

These theoretical components were incorporated into role-play scenarios based on the drinking environments that had been described in the focus group research (Study 1, see Chapter 5). The role-play scenarios were presented as an interactive intervention and also as potential components of the conceptual computer game that was presented in Chapter 10).

The next stage of the research is to evaluate the model and the chosen change objectives in a pilot of the role-play intervention. This study is presented in Chapter 11.

## **Chapter Eleven**

### **Pilot Role Play Intervention Study**

#### **11.1 Chapter Overview**

In the previous chapters the scenarios for an intervention were proposed and were outlined using the intervention mapping framework and following the taxonomy of behaviour change technique suggested by the consort guidelines. The previous chapter also discussed the use of computer games for intervention and discussed the results of young people's opinions about what is engaging about computer games and using computer games as a PHSE health related educational tool. This chapter is concerned with testing the scenarios suggested by the previous research findings with a pilot group taken from the targeted age range in an educational school environment.

This chapter is set out into different sections; the methodology of the study, descriptive statistics, frequency of drinking, relationships between variables and the differences between pre and post measures.

#### **11.2 Background**

As outlined in the previous chapter, the role-play scenarios were constructed based upon the conceptual combined model of the TPB, PWM and social norms theory. Each of the scenarios was based upon the thematic analysis of focus groups with teenagers aged 11-15 as described in Chapter 3, who suggested that their drinking environments were home, outside spaces such as parks and at house parties. Using an intervention mapping technique the scenarios were designed to challenge attitudes, drinker images and social norms and increase self efficacy (behavioural control), and decrease willingness and intention to drink alcohol.

### **11.3 Hypotheses**

It was hypothesised that:

H<sub>1</sub> Taking part in the role-play intervention will decrease positive attitudes towards alcohol use

H<sub>2</sub> Taking part in the role-play intervention will decrease estimations of peer drinking.

H<sub>3</sub> Taking part in the role-play will decrease intention and willingness to drink alcohol

H<sub>4</sub> Taking part in the role-play will reduce the frequency of drinking and number of units consumed.

### **11.4 Method**

#### **11.4.1 Design**

The study was a repeated measures design, with measures taken pre intervention and one-month post intervention.

#### **11.4.2 Participants**

The planned study was with 2 classes of 11-12 year olds and 2 classes of 13-14 year olds. However, closer to the study date the gatekeepers decided that the study could only be accommodated in one session due to other school commitments. Hence, 30 participants took part in the study. These were 18 females and 12 males aged between 13 and 14 years, ( $M = 13.7$ ,  $SD = .46$ ). All of the participants were in the same class at a school in the South East England.

### **11.4.3 Materials**

The materials consisted of a head teacher information and consent form (see appendix A), parent information and consent form (see appendix A), an A4 booklet version of the questionnaire consisting of scales relating to the TPB, PWM, social norms and alcohol behaviour (see appendix C) and three PowerPoint slides containing information about the study and alcohol. The personality measures were removed from this version of the questionnaire as there were concerns expressed relating to the length of the questionnaire and the time constraints within the school day.

### **11.4.4 Procedure**

Following ethical approval from the psychology department at the University of Bedfordshire, a local school was approached to pilot the intervention. Consent was sought from the head teacher, and parents/carers prior to the study and all of the participants gave their assent to take part.

As part of continuing relationships within the school, Psychology A level students were briefed as to the aims of the research and how to conduct the role-plays. These students then offered guidance and support to participants during the study within the classroom.

Following information and consent, participants were asked to complete the questionnaire. The A level students, the class teacher and investigator were on hand to answer questions or help with comprehension of the questionnaire. Questionnaires were collected and the investigator gave a brief presentation about alcohol in adolescence and an introduction to the role-plays, and what they should do with the role-play scenario cards that they were given.

The participants were split into groups and chose to work within the tables where they were sitting. Each group was given support in working through and acting

out the role-play examples. Due to time limitations, some groups of students chose to give feedback about their role-play rather than act it out. One group with the investigators support chose to act out the “party” scenario, having sourced some props and assigned character roles. Both the class teacher and the students gave feedback indicating that they had enjoyed taking part.

One month later, the same participants completed a follow-up questionnaire that was exactly the same as the pre-intervention questionnaire. The results were entered into SPSS statistical package for analysis.

## 11.5 Results

Firstly descriptive statistics and reliability analyses were performed on each of the scales within the questionnaire.

### 11.5.1 Descriptive Statistics Pre and Post Intervention

The constructs were measured with item subscales scored on a 7-point likert scale. Higher scores are indicative of a positive agreement with the items on the subscale e.g. a higher attitude score indicates a more positive attitude; a higher score on the descriptive norm subscale indicates that a friend’s behaviours/opinions are more similar or important. The means, standard deviations and Cronbach reliability statistics are depicted in table 11.1.

Table 11.1: Average scores, standard deviations and reliability of the subscales of the combined model in Time 1.

Construct	Mean	SD	Cronbach Alpha
Instrumental Attitude	2.97	1.19	.84
Affective Attitude	3.64	1.65	.98
Subjective Norm	2.42	1.43	.84
Control	3.97	1.83	.74

Descriptive Norm	2.93	1.48	.73
Drinker Prototype	3.32	.89	.75
Non Drinker Prototype	5.52	.82	.72
Willingness	3.33	1.78	.81

The subscales all demonstrated good reliability. The affective attitude had a reliability measure that could be indicate a high similarity within the items, however this may be due to the number of items (just 2) and the low number of participants. The average instrumental attitude was generally more negative towards alcohol. The affective attitude average was more positive than the instrumental attitude but still erred on the negative side of the midpoint. The subjective norm average is also towards the negative end of the scale. For this scale the negative end of the scale is indicative of a disapproval of drinking behaviour from significant others. The non-drinker image scale demonstrates a positive non-drinker image whereas the drinker prototype scale shows a more negative image. The students also demonstrated a more negative indication of willingness to consume alcohol.

The mean scores, standard deviations and Cronbach reliability analyses were also calculated for each of the subscales of the combined model post-intervention. The results of these analyses are shown in Table 11.2.

Table 11.2: Average scores, standard deviations and reliability of the subscales of the combined model in Time 2.

Construct	Mean	SD	Cronbach Alpha
Instrumental Attitude	2.77	1.43	.84
Affective Attitude	3.64	1.65	.98
Subjective Norm	2.23	1.14	.72
Control	4.01	1.80	.74
Descriptive Norm	2.97	1.47	.66

Drinker Prototype	3.42	.92	.81
Non Drinker Prototype	4.84	.96	.84
Willingness	3.35	1.64	.75

The scales all demonstrated good reliability, although the descriptive norm scale was weaker than in time 1. This suggests that the measures remained reliable over time. The means were also similar to subscale means from T1, which would seem to suggest that there was little change following intervention.

### 11.5.2 Frequency of drinking Pre and Post Intervention

The frequency of drinking was also observed pre and post role-play intervention. These results are displayed in Table 11.3 below.

Table 11.3: Frequency of drinking pre and post intervention

Frequency	No of students T1	No of students T2
Didn't drink	20	14
Seldom Drunk	6	8
< once a month	2	2
2-3 times a month	1	1
Once a week	0	1
2-4 times a week	1	1
5-6 times a week	0	0
Everyday	0	0

There was little change between time 1 and time 2 with regards to the frequency of drinking. A t-test was performed that confirmed that there was no significant difference between frequency of drinking pre-intervention and frequency of drinking one month post intervention ( $t(25) = -1.443, p = .161$ ).

### 11.5.2 Drinking amounts in the previous month pre and post intervention

The amount that the school students had consumed in the previous month was compared pre and post intervention. These results are depicted in Table 11.4.

Table 11.4: Amount of alcohol consumed in units in the previous month.

Amount in units N=28	No of Students T1	No of students T2
<b>0</b>	21	15
<b>1</b>	1	5
<b>2</b>	3	1
<b>3</b>	3	0
<b>4</b>	0	1

It would seem that there were less students drinking more than 2 units a week post intervention, however there were some difficulties with measurement. The students that admitted drinking in the previous month tended to tick against a particular alcohol rather than indicating the number of drinks they had consumed. It was therefore difficult to assess how many drinks of alcohol they had consumed. A tick was taken to mean an average glass, can, bottle with an average alcohol content for that particular type of alcohol calculated using the Drinkaware unit calculator, unless specified. Although there was some reported changes in the amount of alcohol consumed pre and post intervention, these were not significant when compared using a paired samples t-test; ( $t(20)=-.295, p = .771$ ).

### 11.5.3 Heavy Episodic Drinking Pre and Post Intervention

The amount of alcohol consumed on a single occasion within the last 6 months was calculated using Drinkaware unit calculator based on the average alcohol by volume (ABV) where not specified. At time 1, only seven students responded to the questions with 2 admitting to drinking 2 units, 3 students claiming they had drunk 3-4 units, 1 student 4.5 units and one student 16.6 units. The most popular drinks seemed to be cider and alcopops but the participants also reported drinking



wine, beer, lager and spirits. This may be because it had been Christmas within the last 6 months.

At the one - month follow-up post-intervention the amount drunk ranged from 1 unit to approximately 9 units, with only 6 students respondents. Each of the six students reported different amounts each (1 unit, 2.6 units, 4 units, 4.5 units, 5 units and 9 units respectively).

#### 11.5.4 Typical teen drinking estimations

Often there is an overestimation of the number of drinks that are consumed by the typical teen. The typical teen drinking amounts estimations were compared pre and post intervention. The drinking amounts in number of drinks are shown in Table 11.5.

Table 11.5: A table to show the estimations of the number of drinks a typical teenager may consume on a typical drinking occasion pre and post intervention.

Est. No. Drinks	Pre-Intervention	Post-Intervention
0	1	2
1	10	8
2	9	13
3	4	1
4	2	2
5+	3	0

Pre-intervention a greater number of participants indicated that the typical teen drank 3 to more than 5 drinks on a typical drinking occasion compared to post-intervention. A paired t-test was performed which revealed the estimation to be significantly lower one month post-intervention ( $t(24)=2.309, p=.030$ ).

## 11.6 Relationships Between Variables

### 11.6.1 Relationships between the conceptual model variables pre-intervention

The relationships between the variables were calculated using a 2-tailed Pearson's correlation coefficient. The 2-tailed test was chosen as an exploration of the variables in this group of participants. The relationships between the model variables for the data collection pre-intervention are depicted in table 11.6.

Table 11.6: Relationships between the model variables

	Inst Att	Aff Att	D/Nor m	Subj/Nor m	Con t	Drinke r Im	N/drink er Im	Willin g	Intent
Inst Att	1								
Aff Att	.790**	1							
D/Norm	.541**	.593**	1						
Subj/Nor m	.289	.373	.655**	1					
Cont	.352	.355	.328	.195	1				
Drinker Im	.245	.237	.316	-.040	- .024	1			
N/drink Im	-.162	-.016	-.223	-.160	.068	-.517**	1		
Willing	.451*	.357	.460*	.348	.128	.340	-.376	1	
Intention	.539**	.490**	.721**	.593**	.372	.388*	-.373	.555**	1

\*

\*\*, Correlation is significant at the 0.01 level (2-tailed).

\*, Correlation is significant at the 0.05 level (2-tailed).

There were significant positive relationships between the TPB variables and intention and also positive drinker images and willingness to drink an intention. There was negative relationship between non-drinker images and intention, although this relationship was not significant. These results suggest that those participants who had more positive attitudes, greater perceived control, more positive images of drinkers and more perceived approval from significant others and similar behaviour to friends and a greater willingness to drink if the opportunities arose also scored highly in intention to drink alcohol. Those participants that had positive instrumental attitudes and scored more highly in similarity to their friend's behaviour also indicated more willingness to drink alcohol.

#### **11.6.2 Relationships between drinker images and self image**

The relationships between the drinker and non drinker image perceptions and the contemplation and similarity measures were also calculated using a Pearson's correlation 2-tailed test. The results are shown in Table 11.7.

Table 11.7: Relationships between drinker and non-drinker prototypes and self images

	Drink				FreqN/Dr	SimN/Dr
	Im	FrqDrIm	SimDrIm	N/DrIm	Im	Im
DrinkIm	1					
FrqDrIm	.443*	1				
SimDrIm	.039	.087	1			
N/DrIm	-.517**	-.340	-.123	1		
FreqN/DrIm	.033	.295	-.095	-.069	1	
SimN/DrIm	-.468*	-.107	.054	.106	-.051	1

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

The results indicated that there was no relationship between drinker and non-drinker images and similarity. There was a significant relationship between drinker images and contemplation of drinker images suggesting that those participants who indicated a more positive drinker image also spent more time considering drinker images. Non-drinking images were negatively correlated with drinker images indicating that those with positive drinking images and more negative non-drinker images. Drinker images were also significantly negatively associated with similarity to non-drinker images.

### 11.6.3 Relationships between drinker and non-drinker images post intervention

Table 11.8: Relationships between drinking images and contemplation and similarity post intervention.

			SimDrIm	N/DrIm	FreqN/DrIm	
	DrinkIm2	FrqDrIm2	2	2	2	SimN/DrIm2
DrinkIm2	1					
FrqDrIm2	.224	1				
SimDrIm2	.153	.087	1			
N/DrIm2	-.780**	-.433*	-.126	1		
FreqN/DrIm2	-.290	.301	.056	-.005	1	
SimN/DrIm2	-.108	-.229	.148	.086	-.362	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

There was a significant negative association between drinker images and negative drinker images indicating that those that scored drinking images more highly scored negative images less positively.

### 11.6.4 Relationships between variables post intervention

The relationships between the model variables at the one month follow-up post intervention are shown in table 11.9.

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Table 11.9: Relationships between variables post intervention

	InsAtt	AffAtt t	D/nor m	Subj Norm	Cont	Drink Im	N/drin k Im	Willin g	Intent
InsAtt	1								
AffAtt	.671**	1							
D/norm	.397*	.576**	1						
Subj/Nor m	.674**	.635**	.692**	1					
Cont	.558**	.184	.127	.338	1				
DrinkIm	.449*	.343	.431*	.639**	.139	1			
N/drink Im	-.564**	-.359	-.277	-.603**	-.147	-.780**	1		
Willing	.583**	.597**	.353	.627**	.233	.611**	-.551**	1	
Intent	.682**	.651**	.385	.758**	.358	.417*	-.328	.444*	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

The results from post intervention indicated that instrumental and affective attitude, subjective norm, positive drinker images and willingness were significantly positively related to intention to drink alcohol. There was also a positive relationship between descriptive norms and perceived behavioural control and intention but these relationships were not significant. To evaluate the relationships between variables pre and post intervention, further Pearson's correlations were performed across the data including all of the social norms variables

### **11.6.5 Relationships between the variables pre-intervention and post intervention.**

The relationships between the variables pre-intervention and post-intervention were observed and this indicated that intention to drink post-intervention was related to the frequency of alcohol consumption, the amount that was drunk, heavy episodic drinking, attitudes towards alcohol, the opinions of friends and significant others, how often their friends drank and how often their parents drank pre-intervention.

## **11.7 Testing the Hypotheses**

The scores on the survey pre role-play intervention were compared to scores on the survey post intervention. The results are presented below in association to each of the theories that make up the conceived adolescent alcohol behaviour model framework.

### **11.7.1 Theory of Planned Behaviour**

Paired t-tests were performed to assess the changes in the theory of planned behaviour model concepts post-intervention. There were no significant differences in mean attitudes ( $t(24)=.889$ ,  $p=.383$ ), subjective norms ( $t(24)=.238$ ,  $p=.814$ ), control ( $t(24)=.081$ ,  $p=.936$ ) or intention ( $t(22)=-1.370$ ,  $p=.184$ ) post interventions which suggests that the role-play intervention had no effect on these variables.

### **11.7.2 Prototype/Willingness Model**

For the prototype/willingness model paired t-tests revealed no significant differences in drinker images ( $t(24)=-1.049$ ,  $p=.305$ ) or willingness to drink alcohol ( $t(24)=-1.014$ ,  $p=.111$ ). However there was a significant difference in non-drinker images with non-drinker images being significantly more positive post intervention ( $t(22)=3.398$ ,  $p=.003$ ). This seems to indicate that the intervention had an effect on how participants perceived non-drinker prototypes.

### 11.7.3 Social Norms Theory

Paired t-tests also revealed no significant differences in descriptive norms ( $t(24)=-.067, p=.947$ ), perception of friends' drinking behaviour ( $t(25)=.000, p=1.000$ ), or estimation of the frequency of drinking of the typical teen ( $t(24)=.157, p=.897$ ). However there was a significant difference in the estimation of the amount of alcohol a typical teen might drink, with the estimation being significantly lower one month post-intervention ( $t(24)=2.309, p=.030$ ). These results suggest that the role-play intervention was effective in challenging perceptions of friend's drinking behaviour.

### 11.8 Multi level modelling.

As there is a risk of type 1 error when conducting a number of t-tests due to the assumption that the data is organized at a single level (Field, 2009). A multi-level modeling approach using IBM SPSS was used to examine the data. This did mean that the analysis needed to be conducted one DV at a time as SPSS does not enable the analysis of multiple response models. However the advantage over the t-test is that multi level modeling enables separate analysis of cases over time (Tabachnick & Fidell, 2013) so individual differences can be evaluated. It also allows for missing data.

Data was restructured so that each column represented one variable and a further column representing time was added to capture pre and post time periods. The level one predictors of the model were the student participants and the repeated measure variable time. The second level predictors were the TPB constructs, PWM constructs, Norms and behavioural measures.

The results of the modeling suggested that there was no significant change post intervention in attitude, descriptive norm, subjective norm, control, intention, knowledge, or drinking behavior in that there was no significant variance across the two time points. However, there was a significant variance in non-drinker image  $B = .687, t(3.380), p = .003$  post intervention ( as previously noted). This



suggests that non-drinking images were more positive post intervention.

Further analysis was conducted for behaviour pre and post. The results of this analysis were that there was no significant variance in frequency of drinking or in drinking amounts post intervention. However there was a significant variance in the perception of the amount that typical peers drank post intervention  $B = .413$ ,  $t(2.462)$ ,  $P=.023$ .

The next stage of the analyses was to consider the effects on intention and willingness on behaviour. These were added as covariates to the model. Random effects were included for participant and time but the model was uncertain and so a more parsimonious model was used. The relationship between intention and amount of alcohol consumed showed variance in intercepts across participants and time. Intention significantly predicted amount of alcohol consumed  $B=.432$ ,  $t(5.047)$ ,  $p<0.001$ .

## **11.9 Discussion**

The results of the study indicated that the majority of the participants were non-drinkers, or occasional drinkers with only 2 students reporting drinking regularly every week. There was a significant relationship between the frequency of alcohol consumption and perceptions of drinking behaviour of typical teens and close friends, which, supports the social norm theory (Perkins & Berkowitz, 1986). This was apparent during the holiday period when heavy episodic drinking tended to be reported around the Christmas holiday and was related to beliefs about typical teenage drinking frequency, friends' drinking behaviour and beliefs about drinking and intention to drink alcohol, which suggests peer influence is an important factor in teenage drinking behaviour (Perkins & Berkowitz, 1986; Lewis & Neighbors, 2006).

The behaviour of close friends is an important factor when considering motivational factors for drinking. As Bosari and Carey (2001) identified in a review of the social norms literature descriptive norms were a strong predictor of

alcohol use. This has also been highlighted in a more recent study by Brooks-Russell, Simons-Morton, Haynie, Farhat and Wang, (2014), who found that there was a significant indirect effect with drinking with peers and later alcohol use. 19% of male 10<sup>th</sup> graders (14-15 year olds) and 16.5% of female 10<sup>th</sup> graders reported getting drunk with a same gender friend in the previous month.

Frequency of drinking was also related to attitude towards alcohol, perceived control over drinking, the approval of significant others (TPB; Ajzen, 1981, 1988) and willingness to try it (PWM; Gibbons & Gerrard, 1995, 1997). This would suggest that the dual process model is an appropriate model in explaining drinking behaviour.

There was a significant difference in non-drinker images post intervention, which were less positive. It has been suggested that increasing positive non-drinker images might be an effective intervention measure for example Todd & Mullan, 2011, found that manipulating the drinker prototype imagery into negative imagery was not effective in reducing binge drinking behavior. This may have been due to typical drinker images already being considered as more negative than their own self-image (Gibbons & Gerrard, 1995, 1997). In this study there were no significant relationships between images and similarity to images. There was however a significant negative correlation between drinker and non-drinker images post intervention. Therefore, the intervention was not successful in increasing positive non-drinker images. This may have been due to the low number for participants and the limited participation in acting out the role-play scenarios.

The only significant differences post-intervention were in non-drinker images, which were significantly less positive than pre-intervention, and the estimation of the amounts that typical peers may drink. These results indicate that the role-play intervention may have been effective in reducing misperceptions about peer drinking norms.

These results are encouraging for the utilisation for the combined model in using role-plays with this age group. The combined model did explain 86% of the

variance in intention to drink alcohol, which suggests that it is a useful framework for intervention design.

It was hypothesised that taking part in the role-play intervention would change attitudes, perceptions of norms and intention, willingness and frequency of drinking.

The only significant difference post intervention was a decrease in estimation of typical teen drinking which may suggest that the intervention was successful in challenging misperceptions of peer drinking norms. Therefore the hypothesis was only supported in part. It was however an encouraging result given the small number of participants warranting continued study. The limitation in interpreting the result positively is that due to the small sample size the analysis was selective which could have resulted in a type 1 error, therefore it is difficult to draw conclusions from this study. A larger study with the inclusion of a control group would ascertain the success of this type of intervention.

#### **11.9.1 Strengths of the Study**

This was a novel approach to intervention, which was based on a theoretical framework using an intervention mapping approach. One of the strengths of this study were that it was enjoyable. Both the teacher and the class of children expressed that they had enjoyed taking part in the session. Another strength was the interaction and the ability of the groups to adapt the scenarios to suit the groups that they were in that was consistent with social identity theory (Tajfel & Turner, 1979; Haslam, Jetten & Haslam, 2012).

#### **11.9.2 Limitations**

However, one of the difficulties within the study design was that it was difficult to assess which part of the intervention had this effect. As a requirement from the school, the study included information at the beginning, which included

information relating to misperception of peer drinking norms. Therefore it is difficult to pinpoint whether it was the information, the discussion of role-plays, or the taking part in the role-plays and getting feedback from peers that was the actual effective ingredient, or whether it was a combination of the factors. This has been a criticism of past interventions, which is why there has been a movement towards taxonomies of behaviour change (Abrahams & Michie, 2008). The evaluation tool is therefore important in measuring change. Participants are not only asked about their behaviour or intention but also the pre-determinants of the behaviours. This enables a comparison pre and post intervention. In the current study, the change in estimation of typical drinking is encouraging, but further research is required on a larger scale with comparison to a control group to evaluate it further.

A further limitation within the study was the facilitation of the role-play, which may have affected the results. All of the role-plays incorporated techniques such as 'if you encountered this situation what would you do' within the scenarios, which is linked to implementation intention (Gollwitzer & Sheeran, 2006), the amount that this was explored may have varied according to the support each group was receiving. The group attached to the investigator for example was the only group that chose to act out the scenario including sourcing props from among their possessions. The restraint of the other groups may have been due to the facilitation, with more reserved facilitation or the classroom environment. A more spacious environment may have been more conducive to the design. Further research could be conducted in the drama classroom and over a number of sessions to allow the groups to work through all of the scenarios.

Individual differences in imagining and representations may be a further weakness. The process of imagery uses episodic memory and the role-plays may be asking them something that they have not had any experience of. According to Moulton and Kosslyn (2009) by asking them to imagine that they are in a particular scenario can help them to think about their own responses in the scenario (Moulton & Kosslyn, 2009). The computer game may be helpful in enabling mental imagery through immersion.

### **11.10 Chapter Summary**

This chapter has presented a pilot study to assess the effectiveness of a role play intervention based on the combined model of the TPB, PWM and Social Norms Theory, in challenging misperceptions, attitudes, images and normative beliefs to reduce intention and willingness to drink alcohol. The results post intervention indicated that there was a significant difference in the perception of friend's drinking behaviour and a less positive non-drinker image. The study suggests that the combined model could be a suitable theoretical framework for intervention design for young people of this age group

## Chapter Twelve

### Discussion and Conclusions

#### 12.1: Chapter Overview

This final chapter provides a summary of the current research programme. It begins with the principal aims and a brief summary of the main findings of each of the studies. The next section of the discussion then moves on to present how the current research has contributed to the literature on adolescent alcohol use and adolescent alcohol intervention design. The penultimate section considers limitation of the current study and the future directions for further research. [The chapter then culminates with an overall summary and conclusion.](#)

#### 12.2: Research Aims

The principal aims of the research were to develop a framework that predicted adolescent alcohol use and investigate the feasibility of using this framework as the basis for an interactive intervention that could be used to support the PSHE school curriculum.

This study has followed the intervention mapping approach (Bartholomew et al, 2006), using mixed methodologies to identify factors that may affect the initiation and maintenance of alcohol use in adolescence and to use this information to build a framework on which to build an interactive intervention and an effective evaluative tool. The next section briefly outlines the main findings of the research programme, commencing with the studies that were part of the needs assessment.

### **12.3: Brief Summary of the Main findings**

The main findings from the qualitative research were that the themes from the alcohol focus group supported previous literature and the inclusion of the theory of planned behaviour, prototype willingness model, social norms theory and personality characteristics as a model framework for intervention design and evaluation. These are discussed more fully later in the chapter. The computer game focus groups indicated that a computer game would be an engaging platform for health interventions as long as they included elements of arousal in terms of thrill, action, challenge and competition. The focus groups also revealed codes of structure of the game in the themes of story line and customisation of characters and also reinforcement, such as rewards and social norms. All of these elements were deemed important for inclusion into a game environment.

The next stage of the research was to consider the theoretical framework to underpin the intervention design and an evaluation tool to monitor the outcomes of the behaviour change techniques that were being employed. This was based on previous literature indicating a lack of theory within intervention design and measurement. To this end a questionnaire was constructed based on the TPB (Ajzen, 1991), PWM (Gerrard & Gibbons, 1995, 1997), Social norms approach (Perkins & Berkowitz, 1986), and personality characteristics (Conrod et al, 2000) for risky behaviours. Also included in the questionnaire were questions relating to alcohol drinking behaviour including frequency and quantity measures for the individual, friends, typical peer, parent and also an alcohol related knowledge quiz. The pilot study of the questionnaire with 11-15 year olds indicated that the questionnaire was a suitable tool for this age group, and it was evaluated positively. Other analyses indicated that drinking frequency was related to peer drinking frequency and quantity, parent's frequency of drinking, descriptive norms, impulsivity and willingness.

The pilot study with older adolescents/young adults (19-21) indicated that attitudes were related to frequency of drinking, perceived control and intention to consume alcohol. Frequency of drinking was related to friends' and parents' drinking and heavy episodic drinking was related to impulsivity. The combination of these results reinforced the inclusion of all of the theories within the framework for intervention and evaluation.

To examine the reliability and validity of the questionnaire over a period of time a longitudinal study was carried out with university undergraduates. [The main findings relating to drinking behaviour within the cross sectional analyses of the longitudinal study indicated that the most frequently consumed alcohol was shots/mixers.](#) Drinking was related to friend's drinking, attitudes, subjective norm, perceived control, willingness, impulsivity and sensation seeking. The stepwise regression analysis indicated that the combined model explained 76% of the variance in intention. [Past behaviour was the most significant predictor, indicating that intervention pre-drinking uptake is important, but perceived control, subjective norm, affective attitude \(expectancies\) drinker images and typical peer drinking behaviour were also significant.](#)

The longitudinal study indicated that the most significant predictors of behaviour at follow up were past behaviour and parents' friends' approval of the behaviour, explaining 61% of the variance in frequency of drinking at follow-up. The most significant predictors of intention were past behaviour and intention at baseline, explaining 64% of the variance and willingness at follow up was predicted by willingness at baseline and past behaviour, explaining 51% of the variance in willingness to consume alcohol.

Using the matrices of change constructed on the framework and behaviour change techniques (Michie, Whittington, Hamoudi et al., 2012), in the second stage of the intervention mapping approach (Bartholomew et al, 2006), an interactive intervention was designed and piloted with a group of 30 school children aged 13-14. The results of the pilot intervention study revealed a significant difference in perceptions of peer drinking pre and post intervention, with a decrease in estimated peer drinking post intervention. This result was encouraging in such a



small sample size and suggests that interactive interventions could be an effective approach to targeting adolescent drinking.

#### **12.4: Implications of the research in relation to other studies**

Overall the results of the various studies supported the choice of models to explain and predict behaviour in both adolescents and students and for intervention design and development. Previous criticisms of other interactive methods of intervention with adolescents had been the lack of transparency in the design of the studies and lack of clarity on how the theory has been used (Michie & Abrahams, 2008; Desmet, Van Ryckeghem, Compennolle, Baranowski et al. 2014). This was demonstrated in the CD-ROM game relating to alcohol, use by Schinke, Schwinn and Ozaninan (2011). Therefore an intervention mapping approach was used to undertake an assessment of needs. This consisted of the focus group research within schools and the community relating to alcohol use (Study 1) and computer games (Study 4) as a potential way to intervene with this age group. This was then compared with the literature in the area to inform a potential framework on which to base the intervention. A number of theories were considered but subsequently the framework chosen was an eclectic mix to try and fit the problem as suggested by Bartholomew, Parcel and Gok, (2006).

The framework that evolved/was identified from the needs assessment and engagement with the literature was based on a dual processing approach. The dual processing approach was a combination of the TPB (Ajzen, 1991) and the PWM (Gibbons & Gerrard, 1995, 1997). The TPB (Ajzen, 1991) is a rational expectancy-value model, with behaviour occurring as a result of an intention to perform that behaviour (Connor & Sparks, 2006), and the PWM (Gerrard & Gibbons, 1995, 1997), is a less reasoned more situational response model to behaviour. The combination of these models has been successfully used in conjunction before (Gerrard & Gibbons, 1995, 1997; Ravis, Sheeran & Armitage, 2006). The PWM (Gerrard & Gibbons, 1995, 1997) was chosen, as it is a model specifically designed for use with adolescents and proposes the less reasoned

situational response of willingness (Gerrard & Gibbons, 1995,1997). However, the novelty within the current approach was to combine the TPB and PWM with social norms (Perkins & Berkowitz, 1986) and personality factors. The subjective norm of the TPB has suffered criticism in the past for capturing injunctive norms (others approval) (Elliot & Ainsworth, 2012). Other studies have increased the predictive validity of the TPB by adding a two component normative measure – injunctive and descriptive norms (Elliot & Ainsworth, 2012), but there has yet to be a study that incorporated perceptions of peer drinking, parental use and friend use in addition to the TPB and PWM until the current research programme.

The effectiveness of the theory of planned behaviour in predicting intention to drink has been demonstrated in numerous previous studies (Marcoux & Shope, 2007; McMillan & Connor, 2003). However, it is a rational approach and risk behaviour is not always a considered response but a response to situational cues (Strack & Deutsch, 2004). Adolescents are also going through a series of maturational changes, which can affect their behaviour such as changes in levels of impulsivity (Stewart, Conrod, Marlatt et al. 2005; Littlefield, Sher & Steinley, 2010). Dual-process approaches explain why individuals may not act in ways that are consistent with their underlying beliefs (Strach & Deutsch, 2009). This can be related to two-process memory system that operates in parallel (Smith & DeCoster, 2000). Moss and Albery (2009) proposed a dual process model to account for the alcohol-behaviour link – the expectancy myopia theory. In a non-drinking example this model explains how expectancies about alcohol are linked with mental representations and that even non-drinkers or not yet drinkers are able to consider the effects. This was apparent in the focus group research when the younger adolescents were talking about positive expectancies and imagining themselves drinking in the future.

Normative influences were prevalent in both the qualitative chapter and also in the subsequent chapters evaluating the questionnaire and intervention chapters. Normative influences were the most frequent predictors of behaviour along with past behaviour. The normative influences were included into the framework due to the previous research linking misrepresentations of peer drinking norms (Lewis

& Neighbors, 2006; Perkins, Haines & Rice, 2005; Perkins 2007), and the link to subsequent drinking (Perkins et al, 2005) and that they were a predominant theme identified in the focus group data.

The focus group data indicated that participants tended to talk about the drinking behaviours of their particular friends. They also seemed to defend their own behaviour in comparison to others. This seemed to support social identity theory (Tajfel & Turner, 1972), and the importance of the in-group and in-group behaviour, and the social context of their drinking behaviours (Brooks-Russell, Simons-Morton, Farhat & Wang, 2014). This idea of social identity is not just social contact with others but a meaningful alignment with others in the group (Postmes & Jetten, 2006).

The subsequent studies that examined the pre-determinants of behaviour in examining the questionnaire indicated that while the TPB (Ajzen, 1991) predicted intention it was friend's behaviour that was related to frequency of drinking, in the pilot studies, the longitudinal study and the role-play study. This supported other research that found that friend's behaviour is influential in predicting drinking behaviour in adolescents and students (Connor & McMillan, 1999; McMillan & Connor, 2003; Brooks-Russell, Simons-Morton, Farhat & Wang, 2014). This prevalence throughout supported the inclusion of norms within the model but also the social interactive methods that were chosen for intervention.

According to Haslam, Jetten and Haslam (2012) in their discussion of the 'social cure'. Social identities provide a framework for individuals to define themselves. Individuals that are committed to their social group will use specific values and norms of that group to guide their behaviour (Haslam, Jetten & Haslam, 2012). Therefore, social relationships influence health and well being, particularly those social relationships that are framed by memberships to certain groups or in other words their social identity. This idea of social identity is not merely social contact with others but a meaningful alignment with the other members of the group (Postmes & Jetten, 2006). Turner (1979) proposed that it was social identity that was the basis for social influence. How a person self-categorises into particular groups is therefore important (Reicher & Haslam, 2006). In-group influences are

important but if these influences come from outside the in-group, then they may not change the behaviour of the group (Turner, 1979; Tarrant, Hagger & Farrow, 2011). In terms of influences on health, the influence will then fail if they originate from the out-group (Tarrant, Hagger & Farrow, 2011). In accordance, the 'social cure' (Reicher & Haslam, 2006) postulates that external agencies attempts to promote social identities fail because social identification is a subjective process. Self-categorization is important, as there is then a psychological membership to that group. (Turner, 1979; Reicher & Haslam, 2006). The minimal group experiments provide evidence that individuals are more likely to behave in a manner that is defined by the group membership when they assign themselves than when they are put into the group by the experimenter (Reicher & Haslam, 2006). Interactive methods of intervention are a good way to be able to facilitate self-assignment to groups and capture the social context.

### **12.5 Strengths of the current research programme**

A primary strength of the current research is that the research design was based on a theoretical model that was a combination of key determinants of alcohol use in adolescents and students. Previous research had been conducted on the theories previously but to date, this is the only piece of known research that has used a combination of a dual processing approach and incorporated normative influences.

This framework was incorporated into a questionnaire to provide a measure for predicting behaviour and also an evaluative tool that includes behavioural, normative and socio-cognitive measures to evaluate the intervention effectiveness. This addressed criticisms of previous studies and interventions relating to the lack of theoretical basis or evaluation (see Schoech et al, 2013 for a review of serious games for behaviour change).

A further strength is that the intervention was based on the intervention mapping approach (Bartholomew et al. 2006) and behavioural change techniques from the taxonomies of behaviour change (Michie & Abraham, 2008; Michie, Whittington,

Hamoudi, et al., 2012), and also included an interactive element that allowed the participants to define their own groups and situations. The role-plays were facilitated rather than guided and the participants were asked to imagine themselves in that scenario, which according to Moulton and Kosslyn (2009) simulates reality and allows the individual to mimic the steps of the scenario through mental imagery. Concurrently, the participants were also able to partake in in-group processes.

Haslam, Jetten and Haslam (2012) suggest that group interventions should be built around diverse social identities that have some prior meaning. The use of the role-plays in the classroom was enabling towards achieving this, as they were members of the same class but not necessarily from friendship groups. This could also be incorporated into other interactive methods such as the computer game intervention. This would allow the group to be influenced by each other, rather than external promotion of identities that was a weakness identified by Tarrant, Hagger and Farrow (2011).

As previously discussed a computer game intervention is different from a computer delivered intervention or app because it also allows for immersion, flow and mastery, the 3 key features of learning through serious games (DeSmet et al, 2014). Computer games also allow interaction and it is proposed that social influence through interaction with other peers actually promotes game play (DeSmet et al, 2014), also increasing the fidelity of the intervention.

A further strength of the current research programme was the inclusion of the social norms within the intervention framework. Social norms have been prevalent in the adolescent alcohol literature for many years with the perceptions of peer alcohol use being the most significant proximal predictor of alcohol use (Bosari & Carey, 2001). Adolescent alcohol use often occurs in a social context (Brooks-Russell, Simons-Morton, Haynie, Farhat & Wang, 2014; Trucco, Colder & Wieczorek, 2011). This explains how peer modelling (Bandura, 1977; Trucco, Colder & Wieczorek, 2011) can influence expectancies about alcohol use and how subjective norms would be related to friend's drinking behaviour and approval (Brooks-Russell et al, 2014; Trucco, Colder & Wieczorek, 2011). Therefore the

social context provided in an intervention is important an important factor, as highlighted by the focus groups. In the scenarios for the role-play the social contexts were based on the social environments that had been highlighted by the adolescents and students that had taken part in the focus groups. These were the park (outside space), the house party, and at home. These same social contexts can also form the basis for the story line within the computer game.

A further implication for this research programme is the potential to develop the intervention beyond the school environment and include delinquent non-mainstream participants also. Recent work by Trucco, Colder and Wieczorek and colleagues (2011, 2014) has indicated a link between social norms and delinquency. They propose that changing the perceptions of peer's drinking behaviours and their attitudes towards drinking may decrease affiliation to more deviant peer groups and thus affect imitation and drinking behaviour. The role-play in the current study was successful in challenging misperceptions.

## **12.6 Potential Criticisms**

There are a number of criticisms that could have affected the study and have affected the results and conclusions that can be drawn. The PWM (Gerrard & Gibbons, 1995, 1997) was a weak predictor of behaviour in the current research programme and within the longitudinal design. This may have been due to the ages of the students, being young adults or the descriptors that were used. The current study used descriptors from previous research (Gerrard & Gibbons, 1995, 1997; Spikjerman et al, 2012) and therefore not as relevant to the current sample. Some adjustment could be made to the scale to include descriptors relevant to the research sample such as from interviews or focus groups.

A further criticism is the ages of the participants in the studies. These varied between school aged adolescents and students and as such could have affected the validity of the results. The questionnaire was tested in both adolescents and students, however a limitation of the research programme was the use of older

participants in the longitudinal study. To check for validity in the younger age group future research should also use a control group to check validity.

A criticism of the role-play could be differences in mental imagery. According to Jiang, Adaval, Steinhart and Wyer (2014), mental imagery can produce subjectively different experiences for the participants. Moulton and Kosslyn (2009) posit that mental imagery allows the simulation of reality and gives rise to the subjective experience of perception. It allows individuals to use their past experiences to make predictions, and answer what if questions and make the consequences explicit and accessible (Moulton & Kosslyn, 2009). ‘What if’ questions feature in the role-play scenarios as a behaviour change technique to bridge the intention-behaviour gap. Therefore, this mental imagery simulation helps to create knowledge because the simulation mimics the steps of the situation (Moulton & Kosslyn, 2009). However, a weakness in the role-play simulations is that not all of the young people were or would be willing to engage in this mental imagery. Some students may feel inhibited or feel unable to engage in this process or differ in their perceptual representations (Moulton & Kosslyn, 2009). Moulton and Kosslyn (2009) propose that mental imagery draws on four processes at least; firstly, memory to retrieve and encode information; secondly, imagery processes to draw on retrieval information in order to generate mental representations that are available in working memory; thirdly, associative automatic processes to guide the imagery with the provision of new information and the generation of affective and physiological response (Moulton & Kosslyn, 2009). In terms of prior experience of events, the expectancy literature suggests that adolescents can still have expectancies relating to alcohol without experience it. Social learning theory (Bandura, 1977) may go some way in explaining this as they may have experienced drinking environments even if they have not yet drunk alcohol.

However, to address the potential disparity in the ability of participants to engage in mental imagery an immersive platform was proposed. A serious computer game allows for immersion within a game with an avatar allows the player to place themselves in the shoes of the character (Rodríguez-Ardura & Martínez-López, 2013). In terms of mental imagery this is referred to as emulation

(Moulton & Kosslyn (2009) and also allows the imitation of processes that change the content of the representations. There are similarities between emulation and imagery but whereas not all mental emulation requires mental imagery, all mental imagery requires emulation (Moulton & Kosslyn, 2009).

Telepresence is the ability to see things and live events that are presented through technology as if they were there (Lombard & Ditton, 1997). Media is able to provide a stimulus to aid mental imagery (Finke, 1989). However, it is those that immerse themselves in the experience that will experience the emotions and reaction (Rodríguez-Ardura & Martínez-López, 2013). Telepresence is considered a quasi-perception that isn't purely imagined but is also induced from digital media through cues that induce the illusion of being in that space. This would seem to suggest that computer game immersion would have benefits over role-play and allow the player to have subjective different experiences (Jiang et al, 2014). Also, Jenkins et al, (2010) being part of a community within the game enables what if/then scenarios individually or in groups which still aligns itself to behaviour change theory (Gollwitzer, 1999; Gollwitzer, Bayer & McCulloch, 2005; Gollwitzer & Sheeran, 2006 )

If then plans link situational cues to responses that are appropriate to attaining goals or more desirable outcomes. These are formed to bridge the intention-behaviour gap. These plans form mental links that relate to the anticipated or mental representation of a situation and also the intended behaviour. These mental representations makes the if-then plan more accessible and therefore highly accessible in a situations (Gollwitzer, 1999; Gollwitzer, Bayer & McCulloch, 2005; Gollwitzer & Sheeran, 2006; Webb & Sheeran, 2004).

## **12.7 Difficulties of conducting studies with young people.**

One of the limitations of the study was that the longitudinal evaluation of the questionnaire was not conducted on participants in the 11-15 age bracket.

Although, using students did allow for useful comparisons relating to the use of the model and whether this might be transferable to an older population such as



the college years of USA students, it would have been useful to observe whether the questionnaire remained valid over the time period in the younger age range. Whilst gatekeepers were happy to allow their charges to discuss their opinions relating to alcohol use they were less inclined to allow them to answer questions relating to their own behaviour. Also, the commitment of time for several sweeps of data was another barrier.

Binge drinking behaviour was also difficult to capture within the present study programme. Participants were asked to recall the largest amount that they had drunk on a single occasion within the last six months in a free text. The reliability of binge drinking self-report has to be questioned. Under intoxication, reasoning becomes challenged and memory impaired as suggested by the alcohol myopia theory (Steele & Josephs, 1990), and it may be that some of the estimations were inaccurate e.g. when free text was turned into estimation of units one participant had claimed to drink around 60 units of alcohol. Another participant had written “Kavos”, which is a Greek holiday destination synonymous with a young person’s drinking culture. This would suggest that recall of binge drinking/heavy episodic drinking might not be accurate. Norman, Armitage and Quigley, (2007) describe binge-drinking behaviour as more than 5 pints of beer or 10 shots in a single session for men and three and a half pints of beer for women, which is equal to 10 units for men and 7 units for women. Finding ways of tracking drinking may be helpful to promote more healthy behaviour. [Phone applications may be one way of achieving this, for example Monk, Heim, Qureshi and Price \(2015\) used their app to examine real time recording of drinks compared to retrospective recall and found that more drinks were recorded in real time. This offers a way of objectively measuring behaviour and could be incorporated into interventions such as the proposed computer game.](#)

## **12.8 Summary**

Early onset or experimentation with alcohol use is associated with continued and heavier use with the progression of age (McVie & Bradshaw, 2005). Although

problem drinking is becoming increasingly more difficult to define, heavy use of alcohol has been linked with many health – related issues including increased liver disease in the 22-34 year old age bracket (Thomson et al, 2008), changes in brain development and memory impairment (Spear, 2000) and risky behaviours resulting in risky sexual behaviour or accidents (Mason et al, 2010; Windle et al, 2011).

Adolescence is a unique and complex period of development. It is a transition between childhood and adulthood, with many motivational and developmental changes (Windle et al, 2011) e.g. puberty, increased peer interactions and risk taking behaviours (Spear, 2000). It is a period of time that is associated with identity formation and the exploration of novel and risk taking behaviours (drug use, alcohol use, and risky sexual behaviour), which may in some part be explained by the stress of forming a stable identity (Chou, et al., 2005; Ravert, 2009; Arnett, 2005). It is also a period of cognitive change in terms of capabilities of reasoning and self – regulation (Maggs et al., 1999). Adolescents seem less susceptible to the unpleasant consequences of alcohol use (Deremus et al., 2003), which might normally prevent heavy drinking. It is also an age when peers are integral to their process of self-definition (Marcia, 1980), which overall makes it an ideal period to target health-related behaviours (Maggs et al, 1999). Younger adolescents often look to what older peers do when making decisions about risk (Kinsman, Romer, Furtenberg & Shwarz, 1998). These older peer relationships could be replicated within a game scenario. [This is supported by recent work by Trucco, Colder and Wieczorek \(2011\), Tucco, Colder, Wieczorek, Lengua and Hawk \(2014\) and Brooks-Russell, Simons-Morton, Haynie, Farhat and Wang \(2014\).](#)

Litt & Stock (2011) maintained that if they perceived older peers were drinking more there was a greater willingness also drink more. Time spent on social networking sites was also related to adolescent's perceptions of increased amounts of normative use and a greater willingness to drink more and to more favourable prototypes and positive attitudes. Therefore using technology within intervention

can be an attractive way to present more favourable non-drinker images and correct misperceptions of drinking.

A criticism of other interactive methods of intervention with adolescents is the lack of transparency in the design of the studies and lack of clarity on how the theory has been used (Michie & Abrahams, 2008; Desmet, Van Ryckeghem, Compernelle, Baranowski et al. 2014). This research has used an intervention mapping approach to assess the needs of the target group in the form of focus group research within schools and the community relating to alcohol use (Study 1) and computer games (Study 4) and a literature search. The resulting framework was an eclectic mix of theories to fit the problem as suggested by Bartholomew, Parcel and Gok, (2006).

Atwell, Abraham and Duka, (2011) examined the factors that predicted risky alcohol use in undergraduate UK students. Similarly to the current research observed personality, drinking motives, self-efficacy, alcohol expectancy, prototype perceptions and normative beliefs. They identified that the most predictive correlates were early onset drinking, those high in sensation seeking, social drinkers, those that were low in confidence to stick to within Government drinking guidelines and those that perceived their University friends to drink high levels of alcohol frequently. Suggestions from this research were to shift normative perceptions and enhance self – efficacy. The current research has attempted to incorporate these features within intervention design, and has provided a clear programme of behaviour change techniques.

The framework that was chosen was based on dual processing approach used in the adolescent population, a combination of the TPB, PWM, social norms and personality characteristics that predicted alcohol use. This research also provided a questionnaire to predict alcohol use in adolescents and students and that can be used as an evaluative tool. There has been no previous questionnaire that has been specifically designed to capture such a wide range of behavioural determinants of adolescent alcohol use. The lack of reliable measures has been highlighted in previous research e.g. Nichols, Graber, Brooks-Gunn and Botvin (2006), Schinke, Schwinn and Ozaninan (2011).

Another significant contribution of the current research is a novel intervention design. Other factors from more recent literature has indicated that boosting goal setting and self-efficacy may be important factors as binge drinkers have been shown to have abnormal affective decision making (Xiao, Bechara, Gong, Huang, et al., 2013). The current research had tried to harness these techniques within the intervention design, choosing behaviour change techniques that were aimed at supporting decision making using if-then planning (Gollwitzer et al., 1999). This research has demonstrated that it is possible to draw elements together into an eclectic approach to intervention design to target social behaviours through interaction and social context. There is no other current research that is known that has utilised a role-play based on a theoretical framework of this type.

Although there are other serious games targeting health and alcohol these games have been criticised for their lack of theoretical underpinning and this research offers a framework on which to build a future, more immersive computer game intervention. However, computer game development is a costly venture and this research has sought to provide a theoretical background and examine the change techniques through an interactive method that could become part of the game. The most rigorous forms of intervention evaluation are randomised controlled trials. Future research is planned to compare the role-play intervention and a standard PHSE lesson.

The limitation of drama role-play is that there is less opportunity to provide reinforcement or reward. Interactive environments allow reward through the gaining of points or coins that can be exchanged for customisation accessories. These conditional rewards fit within the behaviourist paradigm and can be used to an advantage to prolong game play (King, Greaves, Exeter & Darzi, 2013). They also offer the opportunity to introduce the concept of self-monitoring and exploration of consequences. The game environment would allow the monitoring of drinks accepted and could also include some of the unpleasant consequences of drinking behaviour and allow education. It could also include some of the thrilling and exciting elements that the participants in the focus groups highlighted such as

shooting the bottle, and knowledge through information and quizzes. The map of the potential game is depicted in Figure 9.2 in Chapter 9.

There is still the potential issue of the hardest to reach individuals lack of engagement within this type of scenario. Virtual environments offer an environment where issues can be explored, but where the individual may feel more engaged through telepresence (Jiang et al, 2014)

## **12.9 Conclusions**

The overall aims of this thesis were to investigate the pre-determinants of alcohol use in adolescents and to develop a framework based on theoretical constructs to form the basis for intervention design.

Using an intervention mapping approach identify factors that can affect initiation and subsequent alcohol use.

Identify environments in which young people consume alcohol.

Construct a questionnaire based on a theoretical framework specifically for adolescent alcohol behaviour

Identify the active components within intervention and design an interactive intervention to prevent alcohol use/misuse.

This thesis has achieved these aims and has added to the current adolescent alcohol literature.

The programme of research used the intervention mapping approach (Bartholomew et al., 2006). The first step in this process was to conduct a needs assessment, which included exploring adolescent's opinions towards alcohol and their opinions relating to using games in education. During this process it was also identified that teachers would be interested in a game intervention to support the PSHE curriculum.

The second stage of the process was to convert these themes and findings from the current literature into a matrix of change. The framework of theoretical concepts that were identified was a combination of the theory of planned behaviour, the prototype willingness model and the social norms approach. Personality characteristics were also incorporated, as impulsivity has been recognised to be at it's peak during adolescence (Windle et al. 2011) and is associated with drinking behaviour (Conrod et al, 2006). There have been few other studies that have incorporated a range of theoretical correlates into an adolescent population sample except for Ravis and Sheeran, (2003) who previously augmented the theory of planned behaviour with the prototype willingness model.

This framework was evaluated using a longitudinal study on a student population to check for reliability and threats to external validity. This revealed that the questionnaire was reliable and could be used as an evaluative tool for intervention, although further testing is recommended. The findings from the cross sectional analysis indicated that previous behaviour, perceived control, subjective norm, affective attitude, drinker image and typical peer frequency were predictive of intention and explained 76% of the variance. These results supported the inclusion of the multiple correlates within the framework. The longitudinal results indicated that past behaviour and sensation seeking were the most significant contributors to frequency of drinking at follow-up, which supported early intervention to delay onset of alcohol use.

The next stage of the intervention mapping process (stage 3) was to develop theory based strategies. This involved examining the theoretical components and using the behaviour change techniques described by Michie, Whittington, Hamoudi, et al., (2010), in their alcohol taxonomy.

The final stage of the process and the study was to translate the matrices of change into an intervention. The computer game focus groups at stage 1 had indicated that a computer game intervention would make an ideal intervention platform, however computer games are expensive and it was important to evaluate the potential scenarios prior to designing the game. The intervention scenarios were based on the environments that had been highlighted in the alcohol focus

groups and were examined in a pilot role-play study. The pilot study results indicated a significant change in perceptions of peer drinking and supported continued evaluation in further studies.

Overall, the present thesis has provided a framework for targeting alcohol risk behaviour and for evaluating adolescent interventions. It has also begun to explore the possibilities of developing interactive interventions that may be more appealing to the adolescent population and can be explored further in future studies.

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## Appendix A

### Example Consent Forms



## Information and Consent Form

Dear

Thank you for reading this information. My name is Lynne Wood and I am a postgraduate research student from the University of Bedfordshire. My research interest is in the area of adolescent health and I am currently working towards a PhD looking at designing an interactive computer game intervention to prevent alcohol misuse in adolescents. The idea is that this game would be multifaceted targeting health cognitions to impact intentions, willingness and actual drinking behaviour

The first stage of the study is to gauge the opinions of young people's opinions of alcohol use amongst their peer groups. I am particularly interested in the types of social scenarios and environments where alcohol may be consumed by adolescents and their views of the typical peer who may drink alcohol on these occasions.

I am also interested in finding out what young people find engaging about computer games and their views on using games to learn about health issues.

The study design and procedure has been scrutinised and received ethical approval from the Ethics Committee of the Institute of Health and Social Sciences at the University of Bedfordshire.

The study would take the form of focus groups in the school during normal school hours. The focus group would last for half an hour and would be facilitated by myself and tape

recorded. Copies of the types of questions that may be used to facilitate the discussions would be made available at the school for participants' parents or carers.

In order for any child to participate in this study I would need your consent for this study to take place in your school. I would also need written consent from the child's parents or carers and from the volunteers themselves to take part.

Participation in the study is voluntary and volunteers have a right to withdraw from the study at any time. Unfortunately due to confidentiality and anonymity issues for all participants I would be unable to let you have copies of the recordings of the discussions. All of the data collected will be kept confidential and the recordings will be transcribed using pseudonyms and reported in general terms. Following the research and to aid future research in this area there is a possibility that the results may be published in a professional journal. These results will be reported in general terms to ensure that the school and volunteers would not be identifiable.

The topic of alcohol is a sensitive issue and I will make it clear to participants that I am unable to talk about individual concerns or offer advice relating to alcohol use. I will however provide them with free phone telephone numbers and website addresses for ChildLine and Talk to Frank .

If you are happy to allow me to conduct this research within your school please could I ask you to sign this information and consent form.

If you have any questions regarding this research please do not hesitate in contacting me .

Thank you

Lynne Wood

[Lynne.wood@beds.ac.uk](mailto:Lynne.wood@beds.ac.uk)



I .....consent for Lynne Wood from the University of Bedfordshire to recruit volunteer participants from .....school to take part in focus groups relating to alcohol use amongst young people and engaging characteristics of computer games and their use as tools for health education.

Signed .....

Position.....

Finding meaning for engagement and enjoyment in computer games for education.

Parent/Guardian Information Sheet and Consent Form

Dear Parent/Gaurdian,

Thank you for taking time to read this letter. My name is Lynne Wood and I am a research student from the University of Bedfordshire currently studying towards PhD in Health Psychology. My particular area of interest is adolescent health and using computer games as an education tool for health related topics.

I will be visiting your child's school in the autumn term to conduct a study to gain the views of the pupils about computer games.

I am particularly interested in what kinds of computer games are the most engaging, what kinds of things within the game keep them interested and their ideas on using games to learn about health.

The study will take the form of focus groups in your child's school during normal school hours. The focus group will last for a total of half an hour with twenty minutes discussion time and will be facilitated by myself and tape recorded.

Copies of the types of questions that may be used to facilitate the discussions will be available at the school office if you would like to see them.

In order for your child to participate in this study I must first ask for your written consent for your child to be involved. If you are happy for your child to take part please could you complete the attached consent form and return it to your child's form teacher as soon as possible. I have also attached an information sheet and consent form for your child and if you are happy to, please could I ask you to pass it on to them.

Participation in the study is voluntary and you have the right to withdraw your child from the study at any time and their input in the discussions will not be used in the research. Unfortunately due to confidentiality and anonymity issues for all participants I would be unable to let you have copies of the recordings of the discussions. All of the data collected will be kept confidential the recordings will be transcribed using pseudonyms and reported in general terms. Following the research and to aid future research in this area there is a possibility that the results may be published in a professional journal. These results will be reported in general terms to ensure that your child and the school will not be identifiable.

If you have any further questions please do not hesitate in contacting me.

Lynne Wood

Post Graduate Research Student

[lynne.wood.beds.ac](mailto:lynne.wood.beds.ac)

Dear Parent/Gaurdian

A researcher will be visiting the school from the University of Bedfordshire during the autumn term to carry out a study looking at adolescent's views regarding computer games.

The study will take place in the form of tape recorded focus groups of four pupils of similar age where the pupils will be encouraged to share their views and their ideas on the kinds of games that are most enjoyable and their thoughts on using computer games to learn about health related topics. All the data collected will be confidential and treated anonymously with the use of pseudonyms. Participation is completely voluntary and you have the right to withdraw your child from the study at any time.

Your written consent is required for your child to take part in the study.

If you are happy for your child to take part in the study please complete the tear off strip below and return to the school before 30<sup>th</sup> September 2009.

I \_\_\_\_\_ consent for my son/daughter/ward \_\_\_\_\_ to

take part in a focus group discussion on \_\_\_\_\_ (date) at

\_\_\_\_\_ (school) on the topic of computer games.

### **Participant Information Sheet for Alcohol Focus Group**

Hello my name is Lynne Wood and I am a research student from the University of Bedfordshire working towards a PhD in Health Psychology. Firstly thank you for taking time to read this letter.

I am really interested in the views of young people such as yourself on alcohol and I will be visiting your school on July 1<sup>st</sup> 2009 to carry out some research.

The research will involve group discussions in groups of four about people your age drinking alcohol. I am particularly interested in where this might happen and the types of young people who might drink. It is not a test and you will not be judged on what you say, I am just interested in the view points of young people such as yourself.

In order for you to take part I need your written consent and you parents/guardians written consent. If you would like to take part please complete the tear off slip at the bottom and return to your form teacher as soon as possible, along with your parent or guardian's consent form.

The group discussions will be made up of small groups of four and will be very informal. Taking part is completely up to you, you do not have to take part, and you would be free to leave the study at any time.

The discussions will be recorded to help me with the research but will be kept confidential and I will not use your real names in any reports.

If you have any questions please feel free to contact me:

Lynne Wood

Postgraduate Student

[lynne.wood@beds.ac.uk](mailto:lynne.wood@beds.ac.uk)

I \_\_\_\_\_ would like to take part in the group discussions  
about people of a similar age drinking alcohol on July 1<sup>st</sup> 2009 at Cedars Upper School I  
understand I do not have to take part and can leave the study at any time.

Signed \_\_\_\_\_

## Appendix B

### Focus Group Plan

Understanding adolescent's social environments and prototype imagery relating to alcohol use; a focus group approach.

Session plan and questions for thirty minute session.

Welcome and introduction (see attached sheet) (approx 5 minutes)

Warm up exercise (2 minutes)

What is your name and what do you like doing?

Aim: unpacking perceptions of alcohol use amongst peers (10 mins)

What do you think about alcohol?

What are your thoughts about people your age drinking alcohol?

How would you describe people your age who drink alcohol?

Aim: Identifying scenarios and social environments for alcohol use.(10 mins)

Where might people of a similar age drink alcohol?

In what type of situation might a person of similar age to you drink alcohol?

Debrief and questions (5 minutes)

Business type cards with contact details and telephone number for a teenage alcohol information service.



## Appendix C

### Alcohol Questionnaire

## Adolescent Cognitive Alcohol Questionnaire

Thank you for agreeing to take part in this study. Remember you do not have to take part and you can leave the study at any time.

In this booklet are a number of sections with questions relating to yourself and your opinions about alcohol. Please read the questions carefully and answer the questions as truthfully as you can. The questions should take you no longer than 20 minutes to answer.

To make sure that your answers remain private (anonymous), please do not write your name on the questionnaire but your initials and the date and month of your birthday.

All your answers will be kept completely confidential.

Thank you!

Please write your initials and the date and month of your birthday here:

e.g. PW/05/Dec

**Section A**: This first section is questions all about you. Please answer as honestly as you can.

1) How old are you?

2) Are you a boy ?

or a girl ?

3) Does your religion or any other personal belief prevent you from drinking alcohol?

Yes

No

- 4) Please put a tick in the box next to the statement which best describes how often you drink alcohol.

I do not drink	
I seldom drink	
I drink less than once a month	
I drink 2-3 times per month	
I drink once a week	
I drink 2-4 times a week	
I drink 5-6 times a week	
I drink everyday	

- 5) On a typical drinking occasion how many alcoholic drinks would you have?

None      1      2      3      4      5 or more

- 6) How many alcoholic drinks (please think of a drink as a whole glass) did you drink

*in the last month?*

*in the last week ?*

7) *If you were to think about the last six months, how many times have you drunk more than 5 glasses (drinks) on a single occasion?*

☐

8) **Please put a tick in the box next to the statement which best describes how often a typical person of your age drinks. (continues on the next page)**

They do not drink	
They seldom drink	
They drink less than once a month	
They drink 2-3 times per month	
They drink once a week	
They drink 2-4 times a week	
They drink 5-6 times a week	
They drink everyday	

9) **On a typical drinking occasion how many alcoholic drinks would a typical person of similar age to you have?**

None      1      2      3      4      5 or more

*Please draw round one number per line that best shows what you think of the statement below (if you don't understand any of the words please put up your hand)*

**10)If I were to drink alcohol in the next month then that would be:**

Harmful	1	2	3	4	5	6	7	Beneficial
Unpleasant	1	2	3	4	5	6	7	Pleasant
Unenjoyable	1	2	3	4	5	6	7	Enjoyable
Bad	1	2	3	4	5	6	7	Good
Foolish	1	2	3	4	5	6	7	Wise

**Section B:** The next section is about you and your personality. Please show how much you agree with the statements below by putting a circle around a number. Please only circle one number.

1 = Strongly disagree   2 = Somewhat disagree   3 = somewhat agree   4 = Strongly agree

1	I am content.	1 2 3 4
2	I often don't think things through before I speak.	1 2 3 4
3	I would like to sky dive	1 2 3 4
4	I am happy	1 2 3 4
5	I often involve myself in situations that I later regret being involved in.	1 2 3 4
6	I enjoy new and exciting experiences even if they are unconventional.	1 2 3 4
7	I have faith that my future holds great promise.	1 2 3 4
8	It's frightening to feel dizzy and faint.	1 2 3 4
9	I like doing things that frighten me a little.	1 2 3 4
10	It frightens me when I feel my heartbeat change.	1 2 3 4
11	I usually act without stopping to think.	1 2 3 4
12	I would like to learn how to drive a motorbike.	1 2 3 4
13	I feel proud of my accomplishments.	1 2 3 4
14	I get scared when I'm too nervous.	1 2 3 4
15	Generally, I am an impulsive person.	1 2 3 4
16	I am interested in experience for it's own sake even if it is illegal.	1 2 3 4
17	I feel that I am a failure.	1 2 3 4
18	I get scared when I experience unusual body sensations.	1 2 3 4
19	I would enjoy hiking long distances in wild and uninhabited territory.	1 2 3 4
20	I feel pleasant.	1 2 3 4
21	It scares me when I am unable to focus on a task.	1 2 3 4
22	I feel I have to be manipulative to get what I want.	1 2 3 4
23	I am very enthusiastic about my future.	1 2 3 4

**Section C:** Please read each of the statements carefully and put a circle round the number that best represents your views.

**1) Drinking alcohol is:**

*Uncool*    1       2       3       4       5       6       7       *Cool*

**2) Many young people of a similar age to me drink alcohol.**

*Strongly Disagree*    1       2       3       4       5       6       7       *Strongly Agree*

**3) With regard to drinking alcohol, I want to do what everyone else is doing.**

*Strongly Disagree*    1       2       3       4       5       6       7       *Strongly Agree*

**4) I will drink alcohol within the next month.**

*Strongly Disagree*    1       2       3       4       5       6       7       *Strongly Agree*



**5) How likely is it that you will drink alcohol in social situations?**

*Very Unlikely*    1    2    3    4    5    6    7    *Very Likely*

**6) Drinking alcohol helps me to feel relaxed and confident in social situations.**

*Strongly Disagree*    1    2    3    4    5    6    7    *Strongly Agree*

**7) Feeling relaxed and confident in social situations is:**

*Not at all Important*    1    2    3    4    5    6    7    *Extremely Important*

**8) Drinking alcohol at my age is "stupid" and can affect my physical and mental well-being.**

*Strongly Disagree*    1    2    3    4    5    6    7    *Strongly Agree*

**11) My physical and mental well-being is really important to me.**

*Strongly Disagree*    1    2    3    4    5    6    7    *Strongly Agree*

**10) Most of my close friends drink alcohol.**

*Strongly Disagree*    1    2    3    4    5    6    7    *Strongly Agree*

**11) My friends would approve of me drinking.**

*Strongly Disagree*    1    2    3    4    5    6    7    *Strongly Agree*

**What I would like you to do now is to take a moment to think about your closest friends**

12) Which of these statements best describes the drinking behaviour of your closest friends?

Do not drink	
Seldom drink	
Drinks less than once a month	
Drinks 2-3 times per month	
Drinks once a week	
Drinks 2-4 times a week	
Drinks 5-6 times a week	
Drinks everyday	

Some people may only drink alcohol occasionally (e.g. special occasions such as Christmas or weddings). So, for the purpose of this study the word **regularly** means every month or more frequently.

13) If I was drinking alcohol regularly, people who are important to me would;

Approve    1    2    3    4    5    6    7    Disapprove

**14) Most of my close friends drink alcohol regularly.**

<i>Strongly Disagree</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Strongly Agree</i>
------------------------------	----------	----------	----------	----------	----------	----------	----------	---------------------------

**15) I go to my friend's houses or to parties where alcohol is freely available**

<i>Strongly Disagree</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Strongly Agree</i>
------------------------------	----------	----------	----------	----------	----------	----------	----------	---------------------------

**16) I intend to drink alcohol within the next month.**

<i>Strongly Disagree</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Strongly Agree</i>
------------------------------	----------	----------	----------	----------	----------	----------	----------	---------------------------

**17) How confident are you that you could refuse an alcoholic drink at a party?**

<i>Not at all confident</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Very confident</i>
---------------------------------	----------	----------	----------	----------	----------	----------	----------	---------------------------

**18) Things going on around me influence my decision to drink or not.**

<i>Strongly Disagree</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Strongly Agree</i>
------------------------------	----------	----------	----------	----------	----------	----------	----------	---------------------------

**19) I feel pressure from people that are important to me (family, friends)**

<i>To drink alcohol</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>To not drink alcohol</i>
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**20) Going to places where alcohol is freely available makes drinking:**

<i>Less likely</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>More likely</i>
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**21) Most of my close friends drink similar amounts to me.**

<i>Strongly Disagree</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Strongly Agree</i>
------------------------------	----------	----------	----------	----------	----------	----------	----------	---------------------------

22) I plan to drink alcohol in the next month.

Definitely will not	1	2	3	4	5	6	7	Definitely will
------------------------	---	---	---	---	---	---	---	--------------------

**23) How likely is it that you will drink alcohol in social situations?**

Very Unlikely	1	2	3	4	5	6	7	Very Likely
------------------	---	---	---	---	---	---	---	-------------

Please take a moment to think about the people closest to you at home

23) Which of the statements below best describe your parents/carers drinking behaviour?

Do not drink	
Seldom drink	
Drinks less than once a month	
Drinks 2-3 times per month	
Drinks once a week	
Drinks 2-4 times a week	

Drinks 5-6 times a week	
Drinks 5-6 times a week	

**Section D:** Now I would like you to think about the type of person your age, who drinks alcohol regularly (once a month or more frequently) and then look at the list of adjectives below and rate how much they describe your image of that person

1	smart	1 (not at all)	2	3	4	5	6	7 (extremely)
2	confused	1 (not at all)	2	3	4	5	6	7 (extremely)
3	popular	1 (not at all)	2	3	4	5	6	7 (extremely)
4	immature	1 (not at all)	2	3	4	5	6	7 (extremely)
5	cool	1 (not at all)	2	3	4	5	6	7 (extremely)
6	self-confident	1 (not at all)	2	3	4	5	6	7 (extremely)
7	independent	1 (not at all)	2	3	4	5	6	7 (extremely)
8	careless	1 (not at all)	2	3	4	5	6	7 (extremely)
9	unattractive	1 (not at all)	2	3	4	5	6	7 (extremely)
10	dull	1 (not at all)	2	3	4	5	6	7 (extremely)
11	considerate	1 (not at all)	2	3	4	5	6	7 (extremely)
12	self-centred	1 (not at all)	2	3	4	5	6	7 (extremely)

13) How often have you thought about this type of person ?

1 2 3 4 5 6 7  
(never) (very often)

14) How similar are you to the type of person your age that drinks alcohol?

1 2 3 4 5 6 7  
(not at all) (very similar)

Section E: Now I would like you to think about the type of person your age, who does not drink alcohol and then look at the list of adjectives below and rate how much they describe your image of that person.

1	smart	1 (not at all)	2	3	4	5	6	7 (extremely)
2	confused	1 (not at all)	2	3	4	5	6	7 (extremely)
3	popular	1 (not at all)	2	3	4	5	6	7 (extremely)
4	immature	1 (not at all)	2	3	4	5	6	7 (extremely)
5	cool	1 (not at all)	2	3	4	5	6	7 (extremely)
6	self-confident	1 (not at all)	2	3	4	5	6	7 (extremely)
7	independent	1 (not at all)	2	3	4	5	6	7 (extremely)
8	careless	1 (not at all)	2	3	4	5	6	7 (extremely)
9	unattractive	1 (not at all)	2	3	4	5	6	7 (extremely)
10	dull	1	2	3	4	5	6	7





a) Take it and try it

<i>Not at all willing</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Extremely willing</i>
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b) Tell them "No thanks"

<i>Not at all willing</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Extremely willing</i>
-----------------------------------	----------	----------	----------	----------	----------	----------	----------	------------------------------

c) Leave the situation

<i>Not at all willing</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>Extremely willing</i>
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**That's great thank you very much!**

**Finally the next couple of pages are some multiple choice questions to see how much you already know about**

Section G: This section is a little quiz about what you know about alcohol. Please circle your answer.

1. At what age can you legally drink alcohol in a bar?

- A. Any age as long as you don't buy it      B. 18  
C. 17      D. 21

2. How many units of alcohol are there in a single shot of vodka?

- A. 1000      B. 10  
C. 100      D. 1

3. The number of deaths from liver disease in the last decade has risen by:

- A. Nearly 50%      B. Nearly 10%  
C. Nearly 70%      D. Nearly 30%

4. What causes hangovers?

- A. Alcohol      B. Dehydration  
C. Colours/Additives in the drinks      D. all of them

5. What will sober you up?

A. Fresh Air

B. Being sick

C. Time

D. Coffee

6. Which has the most alcohol - half a Heineken or a single whisky?

A. whisky is higher

B. Heineken is higher

C. Neither contain alcohol

D. equal

7. Which of these liver diseases can be caused by heavy drinking?

A. cirrhosis

B. Alcohol Hepatitis

C. All of these

D. Cancer

8. Women have lower alcohol tolerance than men because:

A. they have long hair

B. they have small feet

C. Different tastes

D. less water in their bodies

9. Alcohol is:

A. a depressant

B. a stimulant

C. neither

D. both

10. A bottle of alcopop such as Smirnoff ice contains:

A. 3 units

B. 1 unit

B.  $1\frac{1}{2}$  units

D. No units

Below are some true or false statements, please circle your answer

1	It is illegal to give alcohol to under 5's.	TRUE/FALSE
2	Alcohol can give you spots.	TRUE/FALSE
3	The police can confiscate your alcohol and tell your parents if you are drinking in a public place.	TRUE/FALSE
4	A "binge" for young people is considered to be 5 or more units of alcohol in one drinking session.	TRUE/FALSE
5	Mixing your drinks makes you drunker.	TRUE/FALSE
6	Everyone reacts to alcohol in the same way	TRUE/FALSE
7	Alcohol will exaggerate the mood you were in when you started drinking.	TRUE/FALSE
8	It is illegal to be in charge of an under 7 in a public place when drunk.	TRUE/FALSE
9	Alcohol is not a drug.	TRUE/FALSE
10	Alcohol is a stimulant.	TRUE/FALSE

## Appendix D

### Correlation Matrix – Study 3 Cross Sectional Analysis

Cross Sectional Correlation Matrix

	Instrumental Attitude	Affective Attitude	Subjective Norm	Control	Intention	Drinker Image	Non-Drinker Image	Willingness	Hopelessness	Anxiety Sensitivity	Impulsivity	Sensation Seeking	Descriptive Norm	Frequency	Typical Person Frequency	Typical Person Amount	Binge	Friend Frequency	Parent Frequency
Instrumental Attitude	1	.690	.293	.419	.460	.321	-.048	.446	.116	.116	.023	.102	.460	.395	.074	.341	.300	.298	.242
Affective Attitude	.690	1	.331	.543	.589	.224	-.108	.431	.000	.045	.020	.136	.533	.513	.218	.426	.404	.337	.290
Subjective Norm	.293	.331	1	.399	.565	.168	-.246	.239	.111	.116	.199	.159	.630	.489	.164	.249	.344	.500	.345
Control	.419	.543	.399	1	.706	.143	-.029	.384	.011	-.034	.028	.140	.524	.612	.216	.410	.345	.374	.343
Intention	.460	.589	.565	.706	1	.297	-.118	.469	.072	.048	.130	.227	.603	.785	.177	.385	.494	.484	.343
Drinker Image	.321	.224	.168	.143	.297	1	-.023	.240	.033	-.001	.036	.149	.254	.247	.105	.146	.200	.106	.119
Non-Drinker Image	-.048	-.108	-.246	-.029	-.118	-.023	1	-.071	-.096	.063	-.157	-.100	-.054	-.104	-.083	-.020	-.061	-.035	-.039
Willingness	.446	.431	.239	.384	.469	.240	-.071	1	.064	.001	.132	.111	.326	.460	.036	.247	.326	.084	.139
Hopelessness	.116	.000	.111	.011	.072	.033	-.096	.064	1	.022	.044	-.046	.005	.053	.007	.031	.092	.068	.163
Anxiety Sensitivity	.116	.045	.116	-.034	.048	-.001	.063	.001	.022	1	.245	-.080	.073	.042	.024	.060	.012	.024	.094
Impulsivity	.023	.020	.199	.028	.130	.036	-.157	.132	.044	.245	1	.305	.131	.137	.060	.152	.216	.106	.205
Sensation Seeking	.102	.136	.159	.140	.227	.149	-.100	.111	-.046	.080	.302	1	.274	.225	-.027	.098	.294	.141	.042
Descriptive Norm	.460	.533	.630	.524	.603	.254	-.054	.326	.005	.073	.131	.274	1	.571	.228	.385	.420	.620	.405
Frequency	.395	.513	.489	.612	.785	.247	-.104	.460	.053	.042	.137	.225	.571	1	.272	.382	.597	.575	.376
Typical Person Frequency	.074	.218	.164	.216	.177	.105	-.083	.036	.007	.024	.060	-.027	.228	.272	1	.389	.134	.309	.302
Typical Person Amount	.341	.426	.249	.410	.385	.146	-.020	.247	.031	.060	.152	.098	.385	.382	.389	1	.336	.289	.231
Binge	.300	.404	.344	.345	.494	.200	-.061	.326	.092	.012	.216	.294	.420	.597	.134	.336	1	.388	.304
Friend Frequency	.298	.337	.500	.374	.484	.106	-.035	.084	.068	.024	.106	.141	.620	.575	.309	.289	.388	1	.399
Parent Frequency	.242	.290	.345	.343	.343	.119	-.039	.139	.163	.094	.205	.042	.405	.376	.302	.231	.304	.399	1

\*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

## Appendix E

### Stepwise Analysis Age – Study 3



A Stepwise Regression including age showed that age did not alter the results.

		B	Std. Error	Beta
1	(Constant)	3.222	.157	
	frequency	.480	.062	.483***
2	(Constant)	2.081	.310	
	frequency	.352	.067	.354***
	InstAttitude	.381	.091	.284***
3	(Constant)	2.311	.307	
	frequency	.493	.075	.495***
	InstAttitude	.404	.088	.301***
	Friendfreq	-.298	.080	-.263**

## Appendix F

### Exploratory Regression – Study 3 Longitudinal Analysis

Multiple regression analysis using the enter method

A table to show the regression analysis for variables related to intention in time with intention in Time 3.

	<b>B</b>	<b>SE</b>	<b>β</b>
<b>AttitudeT1</b>	-.232	.272	-.136
<b>Subj. Norm T1</b>	.255	.209	.171
<b>Control T1</b>	-.022	.280	-.012
<b>IntentionT1</b>	.484	.184	.502*
<b>Willingness T1</b>	.484	.162	.363*
<b>Friend Freq.T1</b>	.185	.248	.117
<b>Parent Freq. T1</b>	.097	.129	.085
<b>Des. Norm T1</b>	-.177	.264	-.144
*significant at 0.05 level			
$R^2 = .57, AdjR^2 = .49$			

The results of the analysis indicated that attitudes, significant person's approval, control over behaviour and circumstance, intention to drink, friend's and parent's drinking behaviour and opinions significantly predicted future intention to drink alcohol. The model explained 57% of the variance in intention to drink. The same method was applied to the construct of willingness (see table ?) to assess whether variables at time 1 predicted willingness to drink 4 months later.

## 9.7 Multiple Regression Analysis - Willingness

Table? Regression analysis between variables at T1 and Willingness T3

	B	SE	$\beta$
<b>AttitudeT1</b>	-.323	.205	-.267
<b>SubnormT1</b>	.080	.153	.077
<b>ControlT1</b>	-.073	.201	-.056
<b>IntentionT1</b>	.196	.132	.278
<b>WillingnessT1</b>	.450	.124	.468
<b>FriendfreqT1</b>	.072	.178	.063
<b>Des/normT1</b>	.155	.197	.176
<b>Typ/Pers/No.</b>	.377	.150	.271
*significant at 0.05 level			
$R^2 = .56, AdjR^2 = .48$			

The model did significantly predict willingness to drink at time 3, and explained 56% of the variance.

## Appendix G

### Multicollinearity Analysis

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	Collinearity Statistics	
		B	Std. Error	Beta	Tolerance	VIF
1	(Constant)	-1.495	.357			
	AttitAv	.209	.067	.128	.686	1.458
	SubjNorm	.283	.061	.184	.739	1.353
	ControlAv	.487	.077	.286	.558	1.793
	frequency	.593	.060	.458	.530	1.888

a. Dependent Variable: Intention

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	Collinearity Statistics	
	B	Std. Error	Beta	Tolerance	VIF
1 (Constant)	-2.710	.713			
AttitAv	.162	.079	.100	.522	1.917
SubjNorm	.285	.073	.189	.522	1.915
Control	.498	.084	.288	.515	1.940
frequency	.562	.073	.435	.387	2.585
Parentfreq	-.036	.050	-.030	.710	1.409
Friendfreq	-.049	.073	-.034	.465	2.150
DrilmAv	.168	.086	.074	.858	1.165
WillinAv	.057	.059	.043	.616	1.623
HIAV	.106	.147	.026	.941	1.063
ASAv	.033	.131	.009	.866	1.154
ImpAv	.021	.145	.006	.759	1.318
SSAV	.077	.126	.024	.793	1.261
DesNorm	.025	.076	.020	.333	3.006

a. Dependent Variable: Intention

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	Collinearity Statistics	
	B	Std. Error	Beta	Tolerance	VIF
1 (Constant)	-2.200	.822			
AttitAv	.156	.079	.096	.513	1.949
SubjNormAv	.279	.075	.184	.492	2.032
Control	.523	.085	.299	.511	1.956
Freq.	.577	.073	.445	.385	2.600
DrilmAv	.178	.085	.079	.856	1.168
Willin	.047	.058	.035	.622	1.609
NonDriM	-.008	.098	-.003	.882	1.133
Typpersonfreq	-.091	.073	-.051	.738	1.355
Typpersonamount	-.001	.073	.000	.662	1.511
Friendfreq	-.037	.073	-.026	.464	2.156
Parentfreq	-.016	.049	-.013	.703	1.423
DesNorm	.021	.075	.017	.331	3.025
SSAV	.059	.125	.018	.791	1.265
ImpAv	.025	.140	.007	.803	1.245

a. Dependent Variable: Intention



## Appendix H

### Role-Play Scenarios

### House Party (year 7)

This scenario is set at a house party. Sometimes you may be invited to parties in people's houses. This is a common environment for young people to encounter alcohol. The purpose of this scenario is to work through what you may/could say if this happened to you.

One person will play the newcomer to the party, one/two people will be at a table with drinks (including alcohol) on and the others will be in a group talking and laughing together.



PTO

#### Newcomer –

Imagine that you have just entered the party. You have spotted a group that you know chatting on the other side of the room.

As you approach the people at the table offer you a drink. Look over to the people laughing and talking, some are holding glasses. What would you do?

You could say that you want to say hi to everyone first and move away. What other ways of avoiding alcohol can you think of?



People at the drinks table – offer the newcomer a drink, tell them that everyone is drinking



People in the group - laugh, joke, have a good time. When the newcomer comes over, greet him. Ask him if he wants a coke or something (correct misperceptions)

### House Party (year 9)

This scenario is set at a house party. Sometimes you may be invited to parties in people's houses. This is a common environment for young people to encounter alcohol. The purpose of this scenario is to work through what you may/could say if this happened to you.

One person will play the newcomer to the party, one/two people will be at a table with drinks (including alcohol) on and the others will be in a group talking and laughing together.



### House Party (year 9)

This scenario is set at a house party. Sometimes you may be invited to parties in people's houses. This is a common environment for young people to encounter alcohol. The purpose of this scenario is to work through what you may/could say if this happened to you.

One person will play the newcomer to the party, one/two people will be at a table with drinks (including alcohol) on and the others will be in a group talking and laughing together.



## Home

This scenario is based around the home. Sometimes young people such as yourselves may get together round someone's house and have sleepovers. This may be a time when some people may drink alcohol. Imagine that you are all sat listening to music, checking phones/facebook, talking and laughing together. One of the group should play the part of the person who suggests the alcohol.



PTO

What would your reaction be?  
You may be willing to try some?  
You may worry that your parent's carer's would disapprove?  
You may think that it is cool?



Try acting out some of the reactions with the rest of the group.  
How could you refuse without feeling left out of the group?  
Practice some ways of saying no. Choose one of the options that you have discussed/chosen to act out to the rest of the group.

### Park Role Play

This scenario is based around friends meeting in outside spaces such as parks. This may be somewhere where young people experiment with alcohol, even though the police can confiscate it and tell parents/carers.

Imagine that there are a group of you at a park, hanging out together. Someone pulls out a bottle of water that he/she claims has alcohol in it and offers it around in an encouraging way e.g. go on try it. One person in the group should take on this role.

At this point in your role play break off into smaller groups (a bit like when the camera zooms into conversations or thoughts in films)



Two people could discuss whether there is alcohol in the bottle or not, and what they think about alcohol



Another small group could discuss what they might do. Take it and try it? Or say no?



Two people could discuss whether their parents/carers would approve?



Come back together as a larger group and the person will tempt you all again. What will you do?

